...T, SEPTEMBER 17, 1936

FIRST AERO WEEKLY IN THE WORLD

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FLIGHT

The AIRCRAFT ENGINEER AND AIRSHIPS

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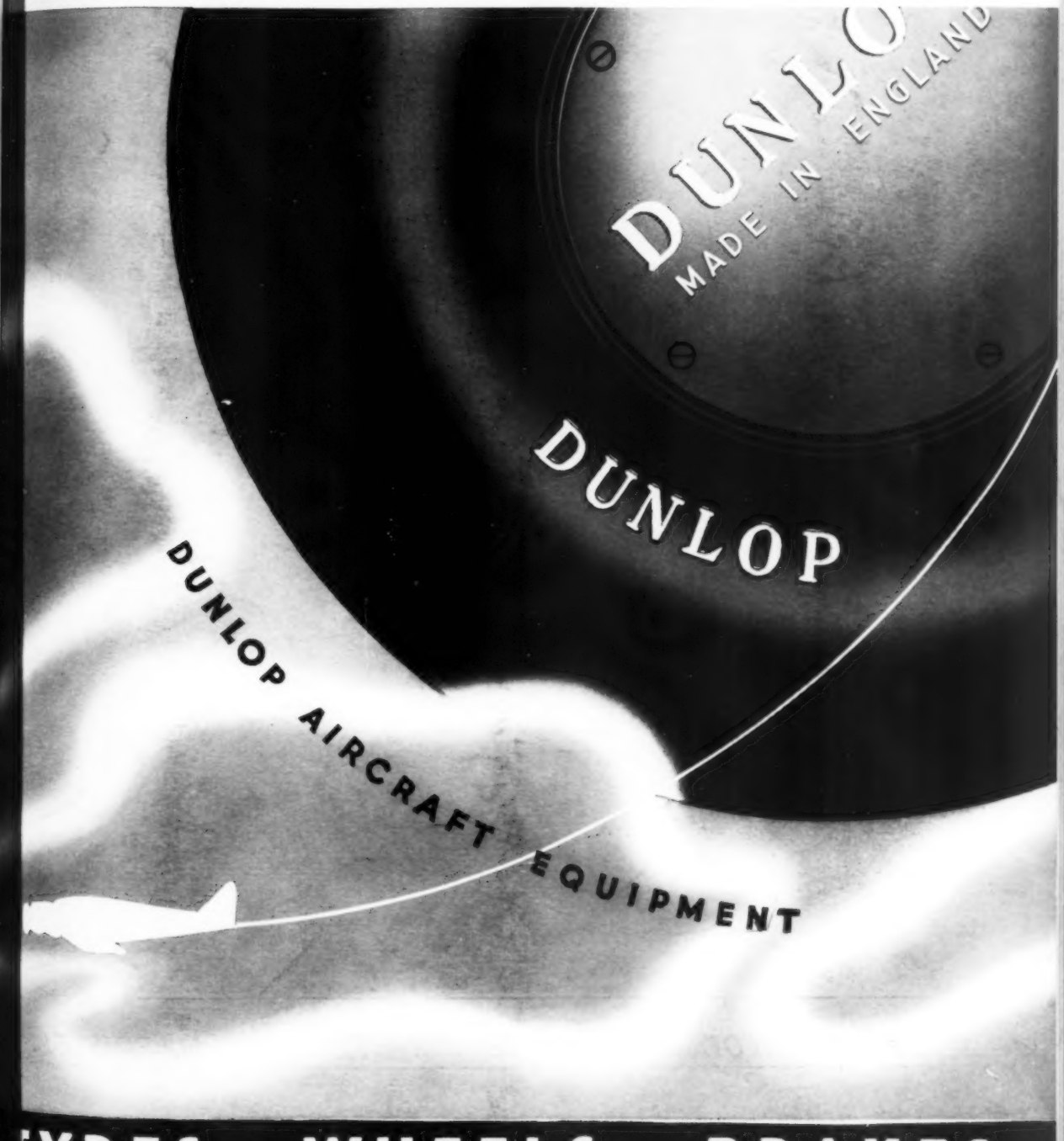

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FLIGHT

The AIRCRAFT ENGINEER AND AIRSHIPS

FIRST AERONAUTICAL WEEKLY IN THE WORLD : FOUNDED 1909

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On the Eve

THE launch of *Caledonia* turns our thoughts to serious work across the Atlantic. This Short flying boat, the second of the batch of twenty-nine ordered by Imperial Airways, is to be fitted with tanks holding sufficient fuel to allow of a crossing from Ireland to Newfoundland. One other boat of this batch will be used for Atlantic tests.

Figures have not been published, and it cannot be said what weight of petrol the boat will carry. It may be presumed that pay-load will not be much taken into account on the early experimental flights. There are many other points on which data are needed, data which can only be obtained by experience in operation. The various sporting pilots who have crossed the Atlantic, from Sir John Alcock to Mrs. Markham, have observed and reported a good deal about the weather and meteorology over that ocean, the workings of wireless, and so on; but naturally they have never made a systematic study of the various factors. Systematic observations and records are what an operating company needs before it can undertake a scheduled service. *Caledonia* and one of her sister boats are to be devoted to the collection and tabulation of such data. When the series of test flights has been completed it will be time to think about pay load, and to decide whether only mails can be carried with profit, or whether passengers will also be a paying proposition. Then, it is understood, Imperial Airways will order new flying boats to be built whose specifications will conform to the lessons taught by *Caledonia* and her sister.

In the meantime the French and Germans have been amassing experience on the Southern Atlantic, and recently the Germans have turned their attention to the North Atlantic as well. The Deutsche Lufthansa has been using Dornier Do. 18 flying boats for these test flights. They are catapulted off fuelling ships, and are monoplanes driven by diesel engines. Only the other day one of them, the *Zephyr*, flew from the Azores to New York, a distance of 2,500 miles, in a trifle over twenty-two hours, in spite of meeting violent head winds.

Details of fuel load, etc., on this flight are not to hand, but particulars have been received of another and in some respects even more remarkable flight by a Junkers Ju.86 landplane fitted with two Jumo 205 two-stroke diesel engines of about 600 h.p. each. This machine, which was exhibited at the Stockholm Exhibition in May last, flew non-stop from Dessau to Bathurst, a distance of 3,600 miles, which is nearly twice as far as the distance from Bathurst to Pernambuco in Brazil. The machine was loaded with 980 gallons of diesel oil, which weighed 8,400lb. Fitted with Junkers-Hamilton airscrews, she took off with a run of 492 yards, and did not seem overloaded. She is said to cruise at 180 m.p.h. in still air.

Diesel Economy

Presumably, the tanks of the Ju.86 were full at the start, and no pay load was carried. After flying the 3,600 miles to Bathurst, she still had 275 gallons of fuel in her tanks. As the two engines consume between them 1.6lb. per mile, they would consume on the 1,875 miles from Bathurst to Pernambuco 3,000lb. of fuel, assuming still air. That would leave 5,400lb. for pay load on the flight across the South Atlantic. If 33.3 per cent. be added to the fuel weight as a reserve, the pay load would be reduced to 4,400lb., which is very respectable for a flight of that distance.

These figures give some idea of what can be done with Diesel engines in a landplane. Now that the petrol engine is very highly developed, and petrols of high octane value give improved fuel consumption, it was only natural that Imperial Airways should begin their Atlantic experiments with petrol engines. Hitherto

there has seemed no pressing need in the Royal Air Force or in British Empire services to abandon the highly developed petrol engine in favour of a type of which few British designers have much experience. The prospects of the Atlantic put a somewhat different face on the matter, for it is in flights of ten hours or more that the Diesel shows an advantage over the petrol engine in weight economy. When preliminary problems have been solved, it is probable that the Atlantic air service will be judged by the proportion of pay-load carried, and it is not prudence to disregard any means of increasing that proportion.

Research into diesel problems is too expensive a matter for a private firm to undertake, especially as the orders for a successful engine are not likely to be large. It is a matter for the Air Ministry.

The Final Necessity

FOR the moment, at any rate, it would appear that the ultra-short-wave radio beam system is the scientists' final contribution towards air-service regularity. The knowledge that Croydon is to be so equipped in the very near future suggests that our Air Ministry, at least, knows of no other possible method by which transport machines may be enabled to reach a terminal airport in the worst conditions.

It is easy to criticise the system on the ground that too much dependence is placed on delicate electrical apparatus and on the still more delicate human apparatus. Actually, these criticisms are hardly justified, since electrical apparatus is already being exclusively depended upon in the ordinary way; since sensitive altimeters and directional gyros will provide additional checks during the more dangerous phase of the approach; and since it has been proved by the experience of many German and Swiss pilots that constant practice can simplify the necessary technique. An article on pages 286-288 explains this technique more clearly than has previously been done, and some months ago a member of the staff of *Flight* found that, at the termination of a certain short period of practice, he could keep the needles steady and the aural note constant.

A much more serious criticism concerns the fact that the aerodromes of the future will need to be still larger and to have much better approaches, from one direction, at least, than were previously thought necessary. Many aerodromes—including Croydon—which had been considered as safe, will suffer in the eyes of the transport pilots until such a time as our designers produce a type which can be brought in safely and under full control at a much lower speed than is now usual. As it is, approach and landing speeds are rising yearly, though not, happily, in proportion to the rise in cruising speeds.

However, some method of obtaining 99.99 per cent. reliability is essential if air transport is to improve its position in the world of communications. The ultra-short-wave approach system should permit this ideal to be attained—provided that this system is used, for the moment, with restraint, and that all transport pilots are given adequate practice in the technique involved. Risks must on no account be taken.

MUNIFICENT : Not only has Mr. I. W. Schlesinger given £10,000 in prize money for the England-Johannesburg Race, but he also offers the impressive trophy seen in the centre to the pilot of the machine making the best time, while replicas—also seen in this picture—will go to the finishers.

The Outlook

A Running Commentary on Air Topics

Future of the Airship

ON the eve of a period of experimental flights intended to ascertain the capabilities of the flying boat type of aircraft for transoceanic services it is natural that believers in the airship should demand a hearing for the type of aircraft in which they pin their faith. With Germany as the only nation which has had really extensive and practical experience of airship construction and operation, it is equally natural that a German authority would state the case for the airship; and when that authority is no less a personage than Karl Arnstein, of the Goodyear-Zeppelin Corporation, his views demand attention.

In a very sane and moderate article in the August issue of the *Journal of the Aeronautical Sciences*, which corresponds as closely as possible to our own *Journal of the Royal Aeronautical Society*, Mr. Arnstein compares quantitatively and qualitatively the large flying boat and the airship. The article is stamped throughout by an obvious desire to be fair to the flying boat, and to give it credit—full credit at that—for its good points.

On a basis of "transport efficiency," defined as pay load multiplied by speed and divided by engine power, Mr. Arnstein calculates that the airship is many times superior to the flying boat. He does not deny that the cruising speed of the modern flying boat is very much higher than that of the airship, but he points out that if the Atlantic crossing is taken as an example, the airship takes the direct route, while the flying boat, if it is to carry any worthwhile pay load, must take a circuitous route, via Bermuda and the Azores, for example, and in so doing loses valuable time, which reduces its terminal-to-terminal speed to a figure not so very much greater than that of the airship.

Room for All

AFTER weighing the pros and cons, Mr. Arnstein arrives at the conclusion that the three forms of transport—steamship, airship, and flying boat—will each have its useful function in the future. The steamship carries passengers across between Europe and America in as little as five days; the airship can reduce that time by one-half; and the flying boat may cut yet another day off the airship's time.

As Mr. Arnstein sees the problem, the airship, with its comfort and relatively important saving of time, as compared with the steamship, will attract a very considerable amount of traffic at fares which, while higher than those of the steamship, can be a good deal lower than the fares it will be necessary to charge for flying-boat transport.

Up to ranges of 2,000 miles the flying boat competes reasonably with the airship, but above that range the expense is considerably greater, and it remains to be seen how large a volume of traffic is attracted by a saving in time of only one day or so on the Atlantic crossing.

One may argue that Mr Arnstein has not taken sufficient account of the improvements possible in heavier-than-air craft, and that when these are incorporated the direct flight between Europe and America may be accomplished in twelve hours. That does not, however, invalidate the argument that there will still be plenty of traffic available for the airship, with its greater freedom of movement for passengers and its ability to slow down in order to conserve fuel, thereby reaching its destination, a little late perhaps, but quite safely, while the heavier-than-air must needs go on, and may fail to reach its destination.

From a national point of view one may regret the fact that Great Britain is in no position to challenge Germany in the matter of airship construction, but it is difficult to deny, on logical grounds, the "place in the sun" which Mr. Arnstein claims for his airship.

Let's Have a Record

A FEW weeks ago *Flight* called attention to the somewhat lamentable fact that at the present time not a single worth-while world's record stands to the credit of Great Britain. There is really no very good reason why this should be so. It is, of course, perfectly true that it costs a good deal of money to build aircraft specially for establishing world's records, but it so happens that we have in existence machines which should be able to beat several of the performances which at present represent high-water marks in the lists of the *Federation Aeronautique Internationale*.

The present altitude record stands at 14,843 metres (48,700ft.) if Detré's recently-established record is homologated. That should not be beyond a British aeroplane and engine to beat, although it will take a specially-built outfit to beat it.

No performance figures concerning our latest single-seater fighters have been made public, but if, with their very powerful engines and extremely clean aerodynamic design, they cannot beat the existing landplane record of 352.4 m.p.h. when "cleaned up" for the record, they will not be very much use against the very fast bombers produced recently.

Distance in a straight line is very much one of the worthwhile records, and in the Vickers Wellesley with its geodetic construction and very low structure weight, we have, ready to hand, a type which should be quite capable of exceeding by a comfortable margin the present record of 5,655 miles. With its high aspect ratio wings, low drag and light weight, the Wellesley must be very nearly the ideal machine for the purpose. The geodetic construction makes it possible to use almost all the space inside the wing for fuel tanks.

Sleeve Valves for the Service

THE bare announcement by the Air Ministry that certain Vildebeest aircraft (to be known in official correspondence as Vildebeest IVs) will be fitted with Bristol Perseus sleeve-valve engines is reason enough for a nice firm pat on the national back. Thanks to the Bristol Company, Great Britain can claim the first practical sleeve-valve aero engines, but, more satisfactory still, we shall have such power plants in regular Service use before any other nation even has a prototype. Doubtless the new version of Vildebeest (a type which appeared with an early geared Jupiter in 1929) will be the first of a number of sleeve-valve-engined machines to be ordered as standard equipment. It may be recalled that the poppet-valve Mercury in the Westland army co-operation monoplane at Hendon this year will eventually be replaced by a new model of Perseus. The latest version of this unit to make a public appearance is the Perseus VIII, which develops 810 h.p. at 5,250ft.

On the commercial side, four civil-rated Perseus engines have been in service with Imperial Airways for some time past, and as their flying hours increased their oil consumption dropped steadily. Fuel consumption is about 0.4lb. per h.p.-hr. (this figure was actually attained during a weak-mixture cruising test at an output of 595 h.p.), which can easily be translated into pounds sterling by commercial operators.

THE TECHNIQUE BLIN

Some Useful Information on the Recommended Methods of Using the Lorenz Receiver : Different Indications and Their Meaning

NOW that two more airports in this country—one of them the airport of London at Croydon—have stated their intention of installing short-wave approach equipment on the now well-known Lorenz system, more commercial machines, naturally enough, will be fitted with the complementary receivers, and more pilots will be expected to use these receivers.

The time appears to have come, therefore, when a really detailed account of the necessary technique concerned with this equipment should be published. Theory and practice are often very different matters, and it is the pilot who carries the actual responsibility and whose judgment on the system will be final.

Since the installation at Tempelhof, Berlin, and the methods of its operation were originally described in *Flight* of February 14, 1935, blind-approach systems have been dealt with periodically, and on June 18 an article on an amateur's practical experience with the Heston installation was published. This, however, dealt with experiences rather than with methods, and the following notes, compiled by Mr. H. M. Samuelson, of Smith's Aircraft Instruments (and late of Standard Telephones and Cables, who have the British rights for the Lorenz system), cover the technique, so to speak, from the beginning to the end, and indicate the manœuvres which are necessary if the receiver is to be used in the correct manner.

The Approach Line

The beam of the main beacon which shows the correct approach line is directed so that the aircraft is given the longest run of the aerodrome and an obstruction-free approach. This track is fixed and allows for the still-air conditions which usually prevail during fog. Hence it should be marked on the map, together with the reverse track to which reference will be made later.

The first sketch shows in plan form the indications given visually and aurally of the various "on course" and "off course" sectors. The zones of "dots" and "dashes" are spread out progressively from the beacon at an angle of some 60 deg. from the correct approach line and can be heard about 15 miles away at 1,500 ft. If the beam track (shown for simplicity, as lying from east to west) happens to coincide with the normal direction of arrival, the pilot's job is relatively easy, as he should be navigating somewhere near the correct line, and will only need to deviate a few degrees to obtain the appropriate indications.

These conditions will not always prevail, and for the purposes of illustration it will be assumed that the aircraft is arriving from the south-west.

Since the Lorenz receiver is quite independent of the usual two-way wireless set, the latter can be used normally in conjunction with the D/F ground station. It is usual to allow about 8 to 10 minutes for the ultra-short wave approach and therefore the pilot should set a course to get himself at a point about 12 miles to the east of the aerodrome. He is then bound to enter the zone of "dots" to the east of the aerodrome and directly these are heard he should start turning progressively through north and north-west towards the correct westerly course. If the turn is too abrupt he will find himself still in the "dot" zone and the directional needle of the indicator will be kicking to the right, showing that he should steer to the right to reach the equi-signal path. If the turn has been too slow he will hear the "dots" gradually blend into the continuous note of the equi-signal line whilst he is still steering north or north-west, and it will be necessary to complete the turn through the zone of "dashes" and follow the instructions of the needle, which will be kicking to the left. It is worth noting that the continuous indications are clearer and more accurate if the turns are made flat, as they would be if the pilot was flying blind.

In the case now under discussion it should be realised that the directional needle of the indicator will be giving the wrong instructions until the machine has passed through north, as when the beacon is behind the aircraft (or when the latter is on the "back beam" of the beacon) the needle will be kicking to the right when the pilot should really turn to his left to get on the approach path. For this reason it is rather safer, when the pilot is inexperienced, for him to disregard the indicator until he is sure that he is on the final approach course, since it is easier to remember that, on whatever side of the beacon he is, or whichever way he is flying, the "dots" are to the south of the approach line and the "dashes" to the north. Actually, the reverse effect of the needle is very quickly observed; if it is followed under the false conditions the machine flies out of the "dot" or "dash" zone and signals fade out, instead of the continuous note of the equi-signal path being heard with the needle remaining central.

An Additional Check

Once the "dots" tend to become blurred and the pulses of the needle to the right become less, it is a warning that the equi-signal zone is being approached. The compass or directional gyro can then be set to 270 deg. (the reciprocal track of the beacon) as an additional check along the right path, which is indicated by a continuous note in the telephones and a centrally placed directional needle.

If the turn has been made correctly the machine should be heading for the aerodrome and about 5 miles away at a height of about 1,500 ft. Incidentally, the distance at which the beacon is first heard is roughly proportional to height, and for 4,000 ft. the range may be as great as 35 miles. Thus, by flying high, more time is allowed for the pilot to manœuvre into position, but with a correspondingly wider circuit and a longer time of approach

From a height of 1,500 ft. the machine should be brought down to about 1,000 ft. with flaps down and reduced throttle until the first marker beacon is approached. Indication of the latter is given in the telephones by a distinctive series of "dots" for a period of about 6 seconds, rising to a crescendo as the marker beacon is passed and then dying away. At the same time one of the neon lights of the indicator flickers.

The pilot then knows that he is exactly on his course and over a predetermined point at a certain height and the radio-assisted glide to the aerodrome should then be begun. Before passing on to the latter it is advisable to explain how the reverse track of the beacon may be utilised for the approach.

BLIND APPROACH

For the aircraft arriving from the south-west, as in the case under review, it might be thought that the east to west radiation of the beacon might be used and under some conditions this is quite possible. It should be realised, however, that the best approach, free from obstacles, has already been selected for the west to east beam (i.e., landing towards the west) and it would be an exceptional aerodrome if two such tracks were available. Furthermore, the radio-assisted glide could not be achieved, as the beacon would then be on the "near" side of the aerodrome instead of the "far" side. For this reason the marker beacons which give the pilot his "fix" before starting the glide are not usually installed on the reverse course. Another difficulty is that the directional needle will give false indication in the same way as it does when the aircraft is headed away from the beacon. If, however, these limitations are recognised, there is no reason why, under fairly bad conditions, the back beam of the beacon could not be used for machines approaching from a westerly sector. Under extreme conditions this might be done and the pilot might steer right over the beacon and turn 180 deg. some five minutes later to come back on the fully equipped path—though confusion might result if controlled-zone operations are in force.

The Glide Path Indicator

As already indicated, the final glide should be started when arriving over the first marker beacon at about 1,000 ft. and some two miles from the aerodrome boundary. Many pilots would be content then to rely on their altimeters and on their own capabilities to guide and touch down, but those experienced in the full use of the Lorenz system will at least use this as an aid to their own judgment.

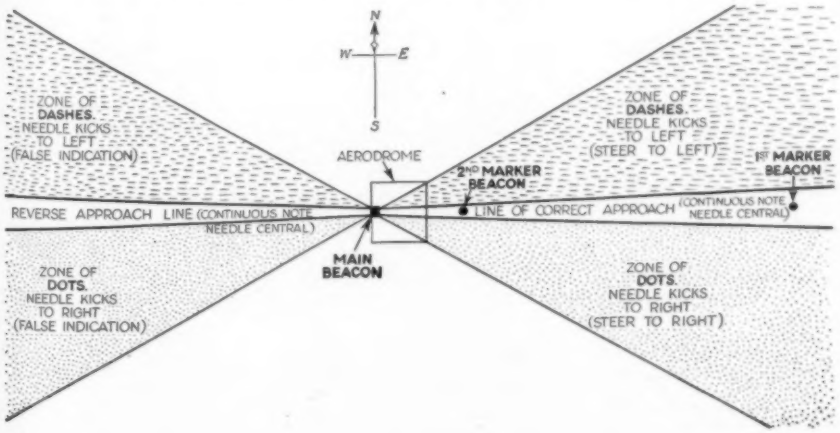
Up to the present, mention has been made only of the directional needle of the indicator. There is another one in addition to this which is used solely for operating the glide path which is explained diagrammatically in the second sketch. The main beacon can be pictured as shooting up "rays" which for certain reasons of design appear to emanate from the centre of the aerodrome. Each one of these "rays" is of what electrical engineers call "equal field strength," i.e., if a radio receiver were moved along one ray it would give a constant signal either in the telephones or by some measuring instrument which could be observed visually.

This second needle is, in fact, part of such a meter. When the main beacon is first perceived, either in the telephones or on the directional needle, the horizontal needle will start moving up from its previous position at the bottom of the scale and show a progressively increasing reading as the beacon is approached. This increase is due to the fact that the machine is cutting "rays" of increasing field strength whilst maintaining horizontal flight.

When the first marker beacon is reached it should be the pilot's aim to select one ray only of equal field strength and to follow its curved path down to the ground. This is achieved by noting the reading of the needle on the scale at the moment that the first marker beacon is passed and holding it constant at that reading during the glide. If the needle rises on the scale it shows that the machine is too high since it has flown into a "ray" of higher field strength. If the needle drops, the glide is being made too steeply and a weaker "ray" is being followed.

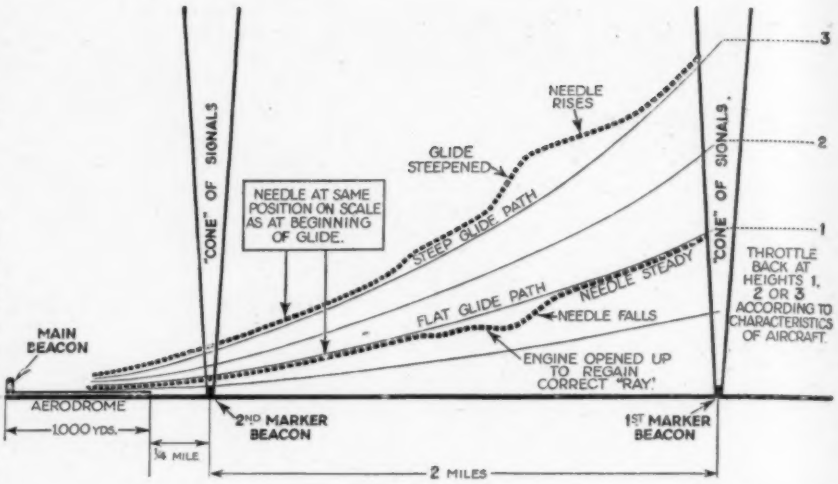
Since there are an infinite number of "rays" from which to choose, it follows that there are an infinite number of glide paths of varying steepness to follow, and hence the different gliding characteristics of different aircraft may be accommodated. In practice this means that fair weather trials are necessary for a pilot to determine at what height he must begin his glide when he hears the first marker beacon. In many cases also a true motorless glide is not achieved, as some machines are best allowed to sink with a touch of throttle. Alternatively, if the pilot during a true glide sees that the needle is dropping, it may not be possible to pull the nose of the aircraft up without causing further sinking and so a small amount of throttle will level up the machine and cause it to fly back into the originally selected "ray."

It can be seen, therefore, that the whole glide path operation is a question of practice and one which each pilot must deal with according to his own judgment and to the type of machine concerned. During gliding the directional guidances are available as before and there is the added security of the second marker beacon.


N
W
E
S
ZONE OF DASHES. NEEDLE KICKS TO LEFT (FALSE INDICATION)
ZONE OF DASHES. NEEDLE KICKS TO LEFT (STEER TO LEFT)
AERODROME
2ND MARKER BEACON
1ST MARKER BEACON
REVERSE APPROACH LINE (CONTINUOUS NOTE, NEEDLE CENTRAL)
LINE OF CORRECT APPROACH (CONTINUOUS NOTE, NEEDLE CENTRAL)
MAIN BEACON
ZONE OF DOTS. NEEDLE KICKS TO RIGHT (FALSE INDICATION)
ZONE OF DOTS. NEEDLE KICKS TO RIGHT (STEER TO RIGHT)

A diagrammatic sketch of the beams in plan, giving a graphic idea of the visual and aural indications in the different sectors.

This sketch shows how different "fields of strength" or "rays" may be used for machines with different gliding characteristics and also the respective indications on the glide path meter, which will be seen in the photograph below.



The latter is situated about a quarter of a mile or less from the edge of the aerodrome. The warning signal in the telephones is of a more urgent character than that of the first beacon, being of a higher frequency of "dots" and in a different tone. The visual indication is given by another neon light flashing on the indicator panel. Each warning lasts for about five seconds.

By the time the machine is over the second marker beacon it should be about 30ft. from the ground and it is only under exceptional conditions that the ground would not then be visible. If, however, the pilot is certain that he is not too high over this point the radio-assisted glide may be confidently continued if nothing is seen of the ground, since the "ray" has been gradually flattening out during the last part of the glide and is practically horizontal at the touch-down point.

If for any reason it is necessary to open up and go round on another circuit, the directional beam may be followed, if necessary, to the far side of the beacon, and the machine turned to the left through the zone of "dots" back on to the reverse track ready to start another approach.

As explained in the article in *Flight* of June 18, this year, a sequence of indications and operations which might on first sight appear to be complicated is simplified in actual practice. And practice appears to be the secret of successful blind approaches by this method.

The latest type of Lorenz dashboard indicator, which is read in conjunction with the aural signals. The glide path needle moves over the vertical scale at the top of the instrument, while the needle below flicks horizontally in relation to the central mark when the machine is flying off-course. At the sides are the two neon lamps one or the other of which glows as a marker beacon is crossed.

At Johannesburg

A PAGEANT of transport is one of the outstanding features of the United Kingdom Government Pavilion at the Empire Exhibition, Johannesburg, which opened last Tuesday.

Models of aircraft, from the Pauley airship of 1815 to the Percival Gull of to-day, find their place in this exhibit. The more modern machines represented also include the H.P.42, Atalanta, Scylla, D.H.86, and Miles Falcon.

Other aircraft models are found on the big stand occupied by the Vickers group of companies.

On the right wing of the stand Vickers (Aviation), Ltd., and the Supermarine Aviation Works (Vickers), Ltd., show a large coloured map, 14ft. by 10ft., featuring the pioneer and notable flights carried out by the early types of aircraft of each of these companies, and also service and training flights of the Royal Air Force on which Vickers machines were used.

Coloured photographic enlargements of the newest types of each company provide a framework for the map, and models are also shown of the Stranraer, the Spitfire I fighter and the Wellesley. A sound-film with a running commentary on each type of aircraft is being shown daily in the Exhibition cinema.

The Vickers group, of course, includes Firth-Vickers Stainless Steels, Ltd., Thos. Firth and John Brown, Ltd., the English Steel Corporation, and Cooke, Troughton and Sims (instrument manufacturers), all of whose products are well known in the aviation industry.

Imperial Airways, as is fitting at an exhibition of this nature, have a most impressive display dealing with all aspects of their work, emphasis naturally being placed on the Empire routes. The Empire air services, incidentally, are also shown by means of moving coloured lights on the giant world map in the Government Pavilion.

Two famous engine manufacturers are represented—Armstrong-Siddeley and Rolls-Royce, and there is a display of Smith's Aircraft Instruments.

A Thousand Miles Non-stop on 36 h.p.

A VERY meritorious performance was put up recently in the shape of a non-stop flight from Prague to Moscow by a Czechoslovakian Praga Baby (36 h.p. Praga flat twin).

The departure was at 2 a.m. from Prague on August 30, and the little machine was piloted by Capt. Polma and Lieutenant Zeleny, both of the Czechoslovak Air Force. Bad weather was experienced over Poland and Russia, and the last 500 miles of the 1,045-mile (1,680 km.) "hop" were rendered even more difficult by a head wind of 16 m.p.h. This obliged the pilot to fly at full throttle, thus wasting fuel; the result was that he was obliged to land a mile or two short of the Moscow civil aerodrome, in the middle of a military drill ground. The total flying time was 15½ hours, and fuel consumption worked out at 2.06 gall./hr.

This achievement has won for Czechoslovakia, subject to confirmation, the world record for non-stop flights with light aircraft of up to 280 kg. empty weight, previously held by America with a flight of 1,150 km.

Shortly afterwards, the same machine and crew won the Hungarian Rally.

THE FOUR WINDS

ITEMS OF INTEREST FROM ALL QUARTERS

SIR ABE BAILEY has offered £10,000 for the encouragement of civil aviation in South Africa.

Flight regrets to record the death of M. Robert Robineau as the result of an accident to a *Pou du Ciel*, with the development of which he was closely associated.

M. Henri Mignet's H.M.18 *Pou*, popularly known as the Intercepter, sideslipped and crashed during a demonstration at Heston last week. M. Mignet was unhurt.

On returning from his holiday on Monday, the King landed in his Rapide, flown by Wing-Commander Fielden, at the Fairey aerodrome at Heathrow.

Lieutenant-General Taha al Hashimi, Chief of the General Staff, and Commander of the Iraqi Army, was entertained at luncheon by the Air Ministry in London last Thursday.

Mr. J. B. Fairbairn and Mr. O. Thomas left Lympne on Monday in a new D.H. Dragonfly, with tankage for 150 gallons, intending to fly to Australia. Their first day's hop was to Vienna.

Mr. Schuyler Kleinhans, of the Douglas Company, has calculated that a flying boat could be constructed which would carry 500 passengers, a crew of 100, and 174 tons of baggage. Its loaded weight would be 1,340 tons.

A series of striking aerial photographs at the Smoke Abatement Exhibition, to be held at the Science Museum from October 2 to 31, will show the amount of smoke discharged daily into the atmosphere from domestic fires and industrial chimneys.

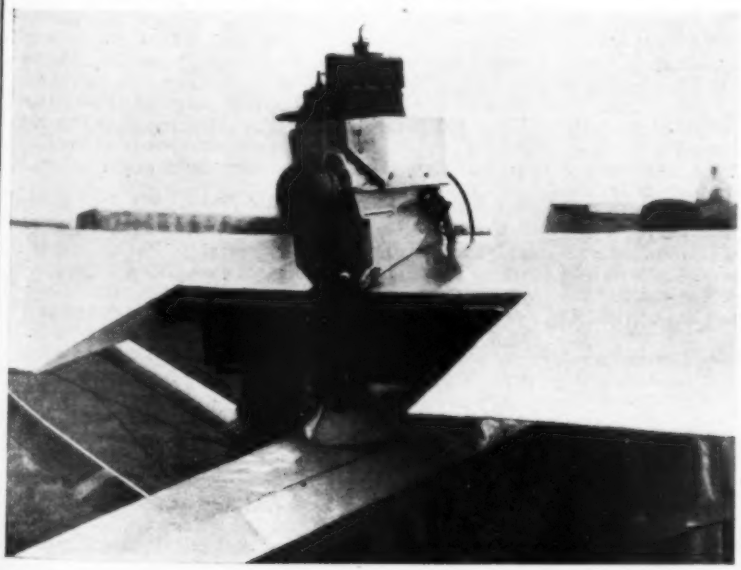
NOT FOR THE MASSES: Designed for participation in the National Air Races this small-calibre, high-velocity projectile has a 300 h.p. supercharged Menasco Buccaneer, the designer of which, Mr. A. Menasco, is approving the installation.

An order has been placed by the Air Ministry for a number of Handley Page 52 medium bombers which are likely to have fully supercharged Pegasus XX engines. The makers, incidentally, habitually class this machine as a fighter-bomber.

More than half the villages, towns and cities of America are now said to be "air marked" in twelve-foot black and orange letters which are visible from 4,000 feet in normal weather.

Kaitanoff, one of the leading Russian parachutists, who has just made his 400th drop, claims among his feats a descent by night from an airship and a leap from an aeroplane during a loop.

Messrs. Harry Richman and Dick Merrill took off for America in their Vultee from Birkdale, near Southport, at 3.3 a.m. on Monday and made a forced landing in boggy country near Musgrave Harbour, about 150 miles from St. John's, Newfoundland, at 7.30 p.m.



DRONE-DRIVER: The installation of the 30 h.p. water-cooled Carden in a new version of the Kronfeld Super Drone. (*Flight* photograph.)

Twenty-five Years Ago

(*From "Flight" of September 16, 1911.*)

"A funny incident occurred while Grahame-White was sitting for his portrait to that well-known portrayer of motoring subjects, Guy Lipscombe. The artist had got him, as he thought, nicely settled on his 'throne.'

"But 'Claude' was by no means comfortable, for after a period of fidgeting, he stood up suddenly with the exclamation 'Gad! Lipscombe, are you sure it's safe up here?'

"This from one who exhibits not the slightest apprehension in venturing out on a Farman in a 40-mile-an-hour gale."

COMMERCIAL AVIATION

— AIRLINES —— AIRPORTS —

FIRST ACROSS: Last week a D.L.H. Dornier Do.18 made what may be called the first experimental commercial crossing of the North Atlantic after being catapulted from the *Schwabenland*, which has been transferred from the South Atlantic service. The Do.18, of course, has diesel engines and the flight is referred to in a leading article this week.

THE WEEK AT CROYDON

Missing a "Scoop" : Origin of Airport Design : Grounding the Papers : Complaints Again : Archaic Methods

I HAVE been away, as T. A. R. Mac pointed out last week, and, though I was within a few miles of the place of landing of Messrs. Ping and Pong, there were neither evening papers in those parts (except the morning ones, which arrived at 7 p.m.) nor wireless, and I knew nothing about it, so (happily) losing the "scoop" of a lifetime. Not having seen an aeroplane for a couple of weeks, I am a trifle out of touch, the nearest to modern transport I have studied being an ancient red and black stage coach which I came across at a wayside port of call, where it is religiously preserved.

Last week, by the way, I partially excavated an early British "hut circle," and now I know where the designers of the airport at Croydon got some of their architectural ideas—for instance, the holes in the roof to let smoke out or rain in. Croydon has been very quiet, but the autumnal tinge is now apparent in the cessation of the B.C.A. Ostend service and the slacking off of Le Touquet and other summer season traffic. Airline traffic, however, has remained remarkably steady, and full loads are still the order of the day (every day) on the Swissair and Imperial services to and from Switzerland.

Considerable excitement and, incidentally, inconvenience was caused last week by the "grounding" of one of the Air Dispatch machines which was actually needed for newspaper transport between London and Paris. In consequence, one machine, I am told, had to do two trips on several days. It is said that the grounding was due to some suspicion that the machine might eventually find its way into Spanish hands. If it is so terribly important that nothing of the sort should happen, it's a pity the authorities did not stop the sale of aircraft to Spain before this country was almost denuded of all but aeroplanes in regular commercial use. It seems that after a lot of "havering" (as that sinister Scot T. A. R. Mac would say) the machine was first released for internal work, for which it was not particularly needed, and then, at the end of the week, for trips to Le Bourget and Le Touquet, whereupon it departed on its lawful occasions.

The American Atlantic airmen did not have much of an opinion of Croydon as an aerodrome. They went to Speke and finally got a three-mile runway on Southport Sands. The point seems to be that, like it or not, people doing stunt flights with heavily overloaded machines (the overload being highly inflammable) should be absolutely barred from using a commercial airport surrounded with houses. There are plenty of complaints from surrounding householders as it is, but if long-distance adventures are allowed to start from Croydon the complaints would be justified.

Wise After the Event

Unfortunately, one of the newspapers is backing the malcontents round Croydon, most of whom came to live where they do *after* the place became an airport. Anyway, the answer is that commercial air transport has come to stay, and anyone who does not like it need not remain in the vicinity. It is quaint how a certain type dislikes anything which is comparatively new. Family albums are full of bewhiskered, vinegar-faced persons who protested against railways, much as their equally liverish descendants loathe and detest air liners. Why? Because the thing is new in their day, and their permission was not asked before it was started.

Wrightways had a really interesting charter last week when Capt. Duggan flew H.H. the Aga Khan from Heston to Doncaster on his first flight. Prince Ali Khan does a lot of flying with Wrightways, and has, it seems, persuaded his father to do likewise.

Recently there have been misunderstandings because of the primitive way in which the Croydon control tower

is equipped—at least, in one particular. When the officer on duty has to step out on to the balcony, with possibly a gale whistling round him and probably a machine or two making Zoo-like noises, he cannot, of course, always hear with exactitude messages howled at him from within by one literally tethered by the ears, i.e., the wireless operator. One of these days, for want of proper equipment, there will be serious consequences. I imagine that the necessary equipment has been asked for by the airport authority, and that the application is receiving, has been receiving, and will continue to receive somebody's serious consideration.

The present system is, of course, up to date, only it depends on the date—as the gentleman who had trailed a pretty pike at Malplaquet said when he turned up at the Battle of Waterloo encumbered with the same archaic weapon of offence. Actually, it is rather as though policemen had to blow out the candle behind the red and yellow lights at a busy traffic centre, and then borrow a match to light the green glass. It would work, but, just possibly, it would cause dissatisfaction.

A. VIATOR.

Swissair's Winter Schedule

THE new winter schedules planned by Swissair will come into force on October 5, and once again the England-Switzerland service will be continued. Machines will leave Croydon at 9.20 a.m. and arrive at Zurich at 1.45 p.m. (Swiss time). The departure from Zurich has been fixed at 2 p.m. to connect with the midday train arrivals from all parts of Switzerland, and the landing at Croydon is scheduled at 4.40 p.m. (English time) in order, as in the outward journey, to give good connections. An excellent connection between Zurich and Milan links up with the Swissair arrivals and departures, bringing Italy within a day's journey.

From October 5 to December 12 the service is operated on week-ends only. For the peak of the winter sports season until the beginning of the summer season a Sunday service will be introduced. In the interests of safety, landings will not be made at Basle (where no blind-approach equipment is installed) during the winter.

New Zealand Traffic

WHEN the returns of three New Zealand operating companies—Air Travel (N.Z.), Ltd.; Union Airways of New Zealand, Ltd., and Cook Strait Airways, Ltd.—are analysed, some interesting figures are revealed. During the April-June quarter of 1936 these are as follows:—

	Air Travel.	Union Airways.	Cook Strait.
Hours flown ..	209	1,307	—
Passengers	231	1,638	3,114
Freight	1,665 lb.	1,166 lb.	5,639 lb.
Mails	8,649 lb.	7,751 lb.	3,528 lb.

The high returns shown by Cook Strait Airways are no doubt due to the peculiarities of the route flown over. Other than by air the only connection between Wellington and Blenheim or Nelson is by small steamer which leaves Wellington at 3 p.m. for Picton (port for Blenheim), thence by rail, arriving at Blenheim not much before 7 p.m. The Nelson boat leaves Wellington at 6.30 p.m., and arrives in the morning.

Air travel has put up a remarkable record on its west coast services. During the period mentioned, and during the same period in 1935, the company claims a service regularity of 100 per cent., all scheduled flights having been completed.

Actually, the first big service in New Zealand—that run between Palmerston North and Dunedin by Union Airways with D.H.86 machines—has now completed six months' of operation! A total of 161,665 miles have been covered, and the machines have been in the air for 1,307 hours, carrying 2,847 passengers, 2,027lb. of freight, and 8,806lb. of mail. Of 336 scheduled trips, only two have been missed, and the percentage of regularity on the basis of performance of the aeroplanes in completing their flights on time is 99.4.

While on the subject of New Zealand, it is worth mentioning that there are now twenty-three privately owned machines in the country.

For Those South Africa-bound

THE variation of wind with height at Wadi Halfa is discussed in the Meteorological Office's latest Professional Notes (No. 72). The upper winds at this station are characterised by great constancy of direction. Up to a height of about 4,000ft. the wind is nearly always between N. and N.E. In the months of December to February the wind above this height usually backs and is at about 300° at 10,000ft. In July to September the backing is much greater, the wind becoming 230° to 260° at 10,000ft. In the transitional period (March to June) the wind does not as a rule back beyond north and, in June particularly, the "constancy" at high levels is very small. The same applies to the winds during the second transitional period between October and November.

The maximum wind speed in the early morning is generally encountered at 2,000ft., whilst the highest velocity at all heights occurs in April. Certain cases are discussed in which the wind at Wadi Halfa is S.E.-S. These are associated either with an extensive low-pressure area in the western desert, or with a northerly extension of the low-pressure area in the Sudan. In the former case the change from S.E. to N. or N.E. is nearly always accompanied by sandstorms.

AIR FRANCE'S LATEST: The twenty-two seater Dewoitine 338 which will shortly be paying a visit to Croydon. This machine has been developed from the 333, three of which are being used on the Toulouse - Dakar section of the South Atlantic service. The extra drag of a wider fuselage has been compensated by the use of a retractable undercarriage and the top speed is only just short of 200 m.p.h. A fleet of these machines will be used on the London-Marseilles service pending the completion of the big Farmans, after which they will go East.

Through from Dublin

INEVITABLY enough, the Dublin-Bristol service has now been extended to Croydon—a move which was forecast in these pages a few weeks ago. An Aer Lingus Teoranta D.H. 86 leaves Dublin (Baldonnel) daily at 9 a.m., reaches Bristol at 11 a.m. and Croydon at midday, leaving on the return journey forty-five minutes later. Dublin is reached at 3.45 p.m. The northern service, *via* the Isle of Man to Liverpool, continues as usual.

Cairo-Cape Encyclopaedia

ANYONE who has examined the four long-distance air-route schedules which have previously been produced by the Asiatic Petroleum Company, will have wondered how small a part the mere supply of fuel and oil played in the huge Shell organisation. The company's position in having representatives in almost every aerodrome in the world enables it to produce the most detailed and accurate material for the benefit of pilots generally. Early this year, it will be remembered, Mr. Brett flew some 14,000 miles in Africa for the purpose, among many others, of correcting and amplifying the available information; his story was, in fact, published in the pages of *Flight*.

Latest of the Shell schedules is that for the Cairo-Cape route (in two parts) and the publication of this most complete guide is apposite in view of the forthcoming race. Plans and details of every aerodrome on the route are given with a mass of additional information concerning such things as currency values, distances, meteorology, radio and so on.

These Shell schedules, though not widely distributed, are available for the use of any pilot who intends to use the route.

The Portsmouth Business

AFTER a discussion on Tuesday night of last week, the Portsmouth City Council again rejected the barrage non-tidal scheme for the Empire air base, despite the recommendations of the airport committee.

The Council decided to inform the Air Ministry that they were prepared to negotiate for the development of a base on tidal, or non-barrage lines. This will cost rather more than £863,000 against the estimated £1,150,000 or so for the barrage scheme. In this case the Government grant would be £280,917, and the cost to ratepayers would be 3d. in the £, as compared with 4¾d. for the more costly scheme. Both the Air Ministry and Imperial Airways originally accepted proposals for the less expensive plan, though a constant-level base would be more satisfactory.

CORRESPONDENCE

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for publication in these columns.

CONSTANT-SPEED AIRSCREWS

REFERRING to the article on "Constant-Speed Airscrews" in *The Aircraft Engineer* supplement of August 27, Mr. Fenton Smith is, of course, quite correct in pointing out that the thrust h.p./altitude curve shown cannot possibly flat from sea level to rated height.

It should not be necessary to point out to readers of *The Aircraft Engineer* that although the r.p.m. and manifold pressure may be kept constant, the b.m.e.p. will by no means follow suit.

In the first place, the decreasing back pressure at the exhaust valve due to falling atmospheric pressure increases the i.m.e.p. of an engine in which constant manifold pressure is maintained.

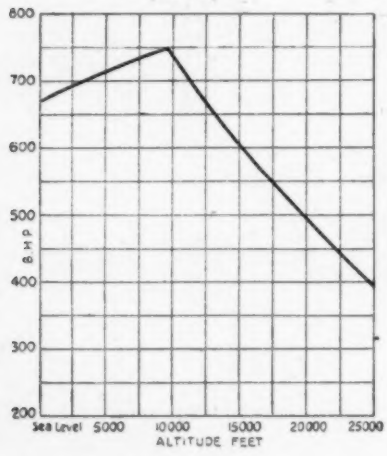
Secondly, since the blower has to be restrained by throttling at all heights below its rated altitude, the power absorbed by this component is substantially independent of altitude, and consequently so likewise is the temperature rise of the ingoing charge. This causes a two-fold loss:

(*a*) From additional throttling to avoid detonation.

(*b*) From decrease in charge density.

The net result is that the h.p. delivered by an engine with a single-speed supercharger is materially less at ground level, as shown in the attached drawing, and since the optimum airscrew efficiency can be assumed at all times, the thrust-power curve will have the same characteristic shape.

If the engine be fitted with a fixed-pitch airscrew this loss in b.h.p. will result in a still greater loss of thrust h.p., since the r.p.m. will be reduced for a given manifold pressure, at which lower speed the airscrew efficiency will also be lower.



B.H.P./altitude curve of engine rated at 750 h.p. at 9,500 ft. with constant manifold pressure of 30 in. Hg. and running at 2,100 r.p.m.

It is in these two respects and these two respects only that the constant-speed airscrew scores, and of these most of the advantage actually accrues from the increased airscrew efficiency, the increased engine r.p.m. being in some respects harmful rather than beneficial.

The reason for this somewhat surprising state of affairs is that the rise in temperature in the supercharger and the power absorbed by it per unit quantity of air delivered both increase very nearly in proportion to the *square* of the speed.

Thus the higher engine r.p.m. promulgated by the airscrew necessitate further throttling to avoid detonation. This, combined with the higher inlet gas temperature, must reduce the b.m.e.p. so that the resultant b.h.p. delivered to the airscrew is not raised in proportion to the increase in r.p.m.

Please do not think from the foregoing that I am attacking the very great value of the constant-speed airscrew—far from it—but I do think its limitations must be clearly borne in mind.

The constant-speed airscrew should be a great help when combined with engines able to withstand material ground boost, but here it must be still remembered that all advantage obtained will entail an increase in thermal stresses so long as the existing types of single-speed centrifugal supercharger are retained.

The ideal solution is, of course, the combination of the constant-speed airscrew with a supercharger of infinitely variable delivery. M. A. McEVOY, A.M.I.A.E., M.S.A.E.

Derby.

STALLING

I SHOULD like to correct an error at the end of the article on tapered-wing stalling in *Flight* of September 3. In my reply to Mr. Needham the speed of 40 m.p.h. is mentioned; this should, of course, be 4 m.p.h.—what I wished to do was to superimpose a translational speed on their rate of impact to show that the final result was no longer an obstruction in the road. In the same paragraph I should have said *reduction* of *vortex* instead of *reduced vortex*, in both places, as my meaning is not clearly expressed as it stands.

In connection with the deep and shallow stalling with yaw or sweep, I should perhaps have pointed out that where a wing stalls deep there will be more drag; there should thus be less tendency for a machine with sweep forward of T.E. to flick into a spin. With regard to this it may be of interest to mention that last year I found that a small dynamic model of Mr. Irving's biplane (bottom wing swept forward and upward and top wing ahead of it and very tapered) could be made to do steep stalled glides without even a rudder or fin, and the fuselage was not at all deep; it was quite stable, and the reason is probably that there was no deep stalling near the wing tips.

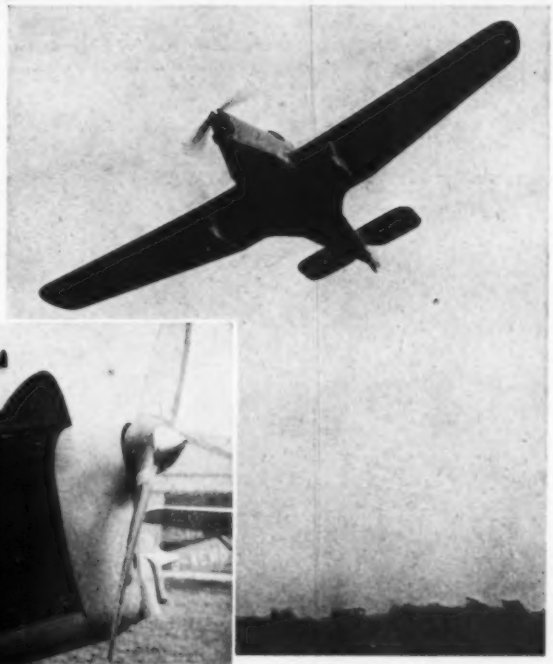
Edgware. W. E. GRAY.

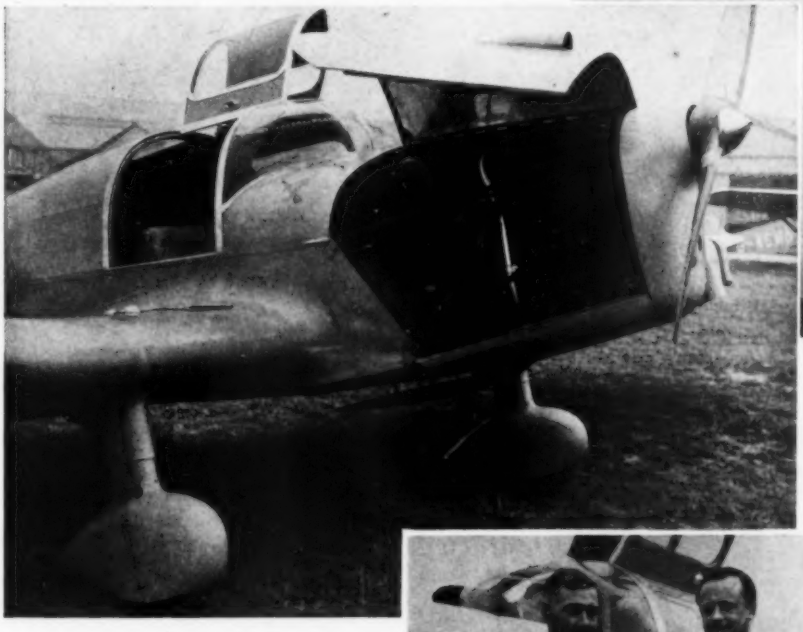
[Mr. Gray mentions that he is free to co-operate with any firm or individual in research work of this nature. Incidentally he is himself a pilot.—ED.]

COUPÉ COMFORT

The Miles Whitney Straight : A Side-by-Side Two-Seater with Desirable Characteristics

AS a two-seater touring and training coupé with a sporting performance, the Miles Whitney Straight with 130 h.p. D.H. Gipsy Major engine seems destined for quite unusual popularity. There is a single seat for two, side by side, and a spacious luggage compartment immediately behind which will accommodate 114 lb. Complete performance figures have not yet been released, but the speed range is from 150 m.p.h. to 38 m.p.h. Operation from restricted areas is facilitated by large flaps which are adjustable to two positions, one for take-off and the other for landing. The respective runs are approximately 100 yards and 50 yards. It has been decided to fix the retail price at £985. The *Flight* photographs on this page give some good general impressions of the machine.





In the upper of the two views above, the Miles Whitney Straight is seen landing, with its flaps in the fully lowered position ; an intermediate position is employed for take-off. The other view gives a fair idea of the plan form.

The Gipsy Major engine exposed to view, and the very roomy cabin open.

A group during a demonstration of the Miles Whitney Straight at Heston (left to right) : Lt.-Col. L. A. Strange, of Straight Corporation, Ltd. ; Mr. Alan Muntz, of Airwork ; Mr. R. E. Grant-Govan of Indian National Airways ; and Mr. Whitney Straight.

(*Flight* photographs.)

(Above) Probably the most silent twin-engined transport (from inside) in the world : Air France's new Bréguet-Wibault 670 with two 820 h.p. Gnome Rhone K.14s.
(Top, centre) It can be assumed that the gliding movement gains not a few recruits from the ranks of the motorists who visit Dunstable Down every fine week-end to watch the London Gliding Club's activities.

NEWS in PICTU

(Left) Mr. C. V
who is beir
this week to
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Mr. and Mrs
Bremner, of
Australia. H
flying a Ve
the South A
in company
Giles Gr

Alex. Papana of the Roumanian Air Force with the Bucker Jungmeister aerobatic trainer was flown to the U.S.A. in the Zeppelin *Hindenburg* for demonstration at the National Air Races.
(Below) *Caledonia*, the second Empire boat, and a Singapore.

CTURES

(Left) Mr. C. W. A. Scott, who is being married this week to Miss Greta Brenner, daughter of Mr. and Mrs. E. J. L. Brenner, of Melbourne, Australia. Mr. Scott is flying a Vega Gull in the South Africa Race, in company with Mr. Giles Guthrie.

(Above) Study in light and shade : a Heyford of No. 102 (B.) Squadron on its way from Worthy Down to Finningley during the recent move to the new aerodrome.

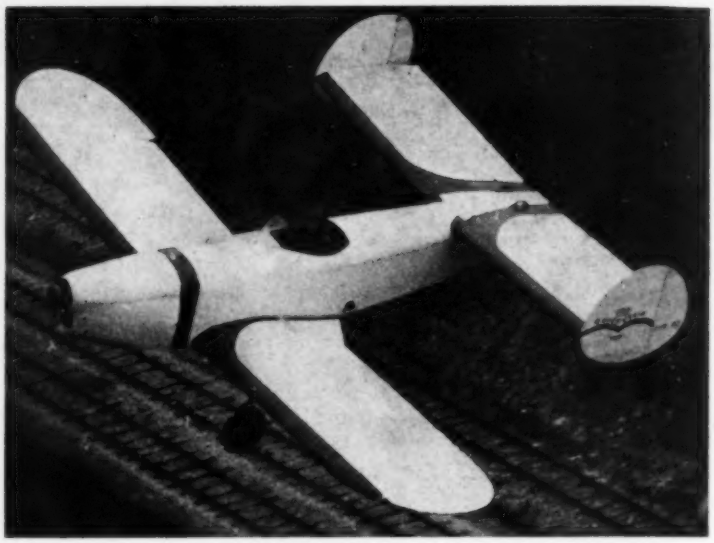
(Left) Johannesburg his goal : Flt. Lt. Tommy Rose is said to have been training for the South Africa Race under the supervision of the Arsenal trainer, and he is seen here with members of the team. Flt. Lt. Rose, incidentally, is a Rugger player of no mean ability.

(Below) His mount : The B.A. Double Eagle (2 Gipsy Six) which Flt. Lt. Rose will fly.

A variable-pitch-over-the-handlebars effort seen at the recent Paris inventions exhibition ; in spite of the resemblance, the inventor is *not* Mr. James Maxton.

REVIVING the TANDEM

An Interesting French Experiment : Lateral Control transferred to Rear Wing : Flaps on Front Wing



The Mauboussin "Hemiptere" in flight.

EVEN in the early days of flying the tandem arrangement of aerofoils was thoroughly tested by the late M. Gustave Eiffel in his wind tunnels. Relatively poor efficiency seemed to accompany any possible arrangement of the wings, and for many years no practical development of full-scale aeroplanes with tandem wings took place.

Then came the glider competition at Itford Hill and Firle Beacon, near Lewes, in Sussex, at which the greatest duration was established by M. Maneyrol, a French pilot, on a French Peyret tandem glider in which both wings were provided with ailerons so interconnected that they could be used both as elevators and as ailerons. The British gliders taking part in the meeting suffered from inadequate control, whereas the Peyret had ample control, and thus enabled Maneyrol to manœuvre so as to remain in the up-currents from Firle Beacon for 3 hours 21 minutes 7 seconds.

M. Louis Peyret, encouraged by his success, struggled along in an endeavour to develop the tandem aeroplane, but without much success, mainly through lack of capital. Now another French constructor has taken up the development of the tandem machine, but has approached the subject in a somewhat different way. The Mauboussin "Hemiptere" is, presumably, so-called because of its resemblance to the hemiptera family of insects, which have four wings, one pair of which is partly coriacious, or leathery and tough, and partly membranous.

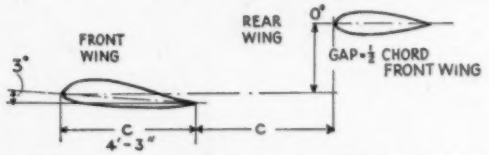
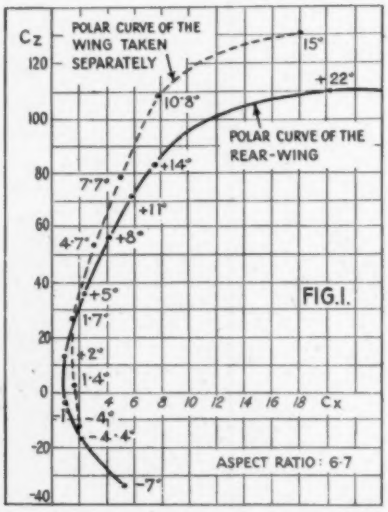


Diagram of wing arrangement in the "Hemiptere."

M. Mauboussin, as already mentioned, has approached the problems of the tandem aeroplane from a different angle. Arguing that if one has a tandem arrangement of the wings, and the c.g. is properly located, the front wing will stall first, putting the machine into a dive before it can go into a spin. If, therefore, the ailerons are transferred from the front to the rear wing, one should have adequate lateral control on the unstalled wing; and even if the front wing should have a slight tendency to spin it will be prevented by the unstalled and fully controlled rear wing from dragging the machine as a whole into a spin.

The fundamental design of the Mauboussin "Hemiptere" (writes R. C. Wood, our Paris correspondent) involves front and rear wings of different aerofoil sections, and arranged with the rear wing mounted on top of the fuselage, while the front wing is attached to the bottom of the fuselage. There is a decalage of three degrees, as the front wing is at an angle of 3 degrees when the rear wing is at 0 deg. incidence. In other words, the arrangement is that of a heavy *negative* stagger, the distance between the front and rear wing being equal to the chord of the front



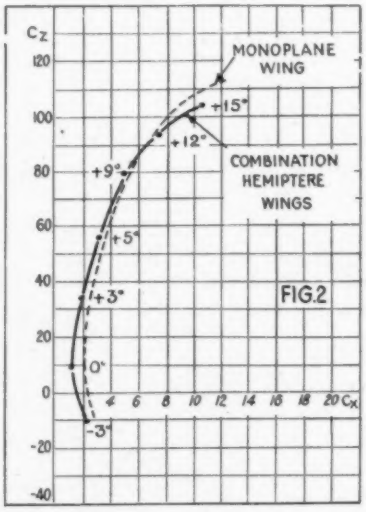


Fig. 1. A polar diagram of the rear wing by itself and of the same wing when influenced by the front wing.

Fig. 2. The tandem wing compared with a monoplane wing. The units are, of course, Continental, and should be divided by 200 to convert them into British "absolute" units.

wing, and the gap one half of the front wing chord, as shown in the first diagram.

Approximately, the area of the rear wing is 60 per cent. of the front wing area, and some of the loss of efficiency introduced by the tandem arrangement has been recovered by M. Mauboussin by placing the fins and rudders at the ends of the rear wing, an arrangement which reduces "end losses," and which has recently been used with success in French and British bombers.

From the curves in Fig. 1 it will be seen that the minimum drag coefficient of the rear wing is lower than the minimum drag coefficient of the wing when tested by itself. These results, by the way, were obtained on a model of aspect ratio 6.7. At large angles of incidence, on the other hand, the drag coefficient of the rear wing is higher than on the wing by itself; this helps to steepen the glide.

Although the maximum lift coefficient of the rear wing is lower than that of the wing by itself, it occurs at a greater angle of incidence, and so makes for safety by ensuring that the front wing shall stall well before the rear wing.

When the Hemiptere tandem wing arrangement is compared with an orthodox monoplane it is found (see Fig. 2) that, although there is a slight loss in maximum lift coefficient, which may be expected to increase the landing speed somewhat, the drag coefficient of the tandem combination is slightly smaller over a wide range of incidences.

Ailerons are fitted on the rear wing only, while the front wing is provided with trailing edge flaps for increasing the lift. These flaps work in conjunction with the rear wing flaps to give an elevator effect.

The twin rudders can be used together for directional control in the ordinary way, but can also be pulled outwards together to form air brakes.

Any engine of approximately 40 b.h.p. can be used in the Hemiptere. That shown in the photograph is a Train engine. With this engine the machine has a maximum speed of about 100 m.p.h. The tare weight is 230 kg. (507 lb.), and the loaded weight 350 kg. (770 lb.). This figure includes enough petrol load to give a cruising range of 540 km. (335 miles) at a cruising speed of 84 m.p.h. The machine is, of course, a single-seater. R. C. W.

JO'BURG JOTTINGS

The Schlesinger Race Draws Near : News of the Event, The Competitors and Their Machines

HIS MAJESTY THE KING has been invited by the Lord Mayor and Corporation of Portsmouth to inspect the machines taking part in the Johannesburg Race.

◇ ◇ ◇

He may visit the aerodrome on September 28. The race starts at 6.15 a.m. on September 29. H.R.H. the Duke of Kent may be present at the start.

◇ ◇ ◇

The race will finish at the Baragwanath aerodrome, Johannesburg, where the competitors will be guests of the Johannesburg Club and of the Empire Exhibition Committee.

◇ ◇ ◇

The prizes will be presented at Johannesburg by Mrs. Schlesinger. The fastest competitor will receive £4,000, and those placed in the handicap £3,000, £1,500, £1,000 and £500.

◇ ◇ ◇

In addition, Mr. Schlesinger is presenting a large silver trophy for fastest time, with replicas for all finishers. These prizes are at present in London, and a photograph of them appears on page 284.

◇ ◇ ◇

Special trains will be run from London to Portsmouth in connection with the event.

◇ ◇ ◇

It is probable that a commentary on the start will be broadcast by the B.B.C.

◇ ◇ ◇

Car parking arrangements at Portsmouth will be in the hands of National Car Parks, Ltd.

◇ ◇ ◇

So far, no extra tanks have been fitted to the Misri Chand-Randolph Vega Gull. It has a Series I Gipsy Six and fixed-pitch airscrew. A possible non-starter here.

◇ ◇ ◇

All the remaining Percival types have Series II "Sixes" and D.H. variable-pitch airscrews. Their cruising speed is likely to be equal to the maximum we have known hitherto.

◇ ◇ ◇

Captain Percival was testing a Mew Gull last Sunday to determine consumption at various heights.

◇ ◇ ◇

The Mews will probably fly between 8,000 and 10,000 feet.

◇ ◇ ◇

Fuel of 87 octane number has been delivered at Gravesend for the new engines, which have a compression ratio of 6 : 1.

◇ ◇ ◇

Mr. Halse has called his Mew Gull *Baragwanath* in honour of the Johannesburg Aero Club.

◇ ◇ ◇

Capt. Miller's machine rejoices in the title *Golden City*, which is inscribed on one side of the cowling, with the interpretation *Die Goudstad* on the other.

◇ ◇ ◇

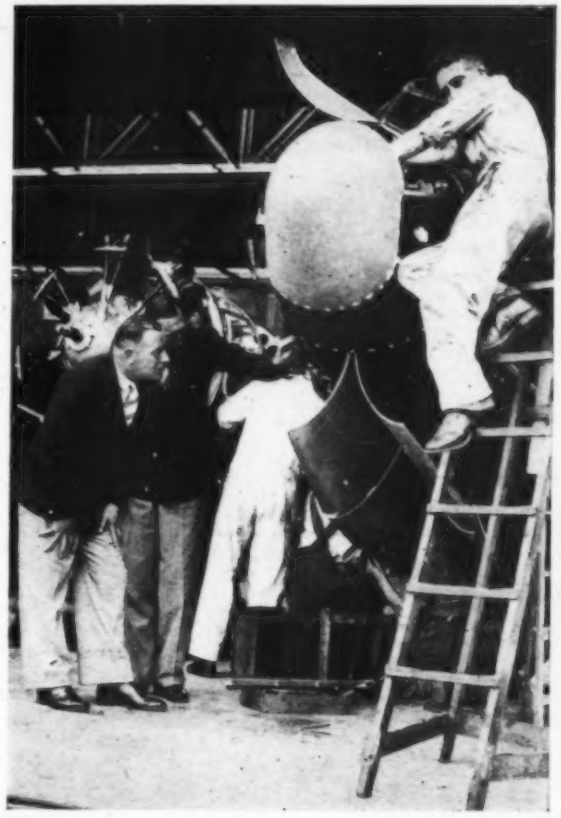
The B.A. Double Eagle is retaining its Series I Gipsy Sixes and Fairey airscrews. "Tommy" will be noting consumption this week.

◇ ◇ ◇

The venturis for the blind-flying instruments on the Mews are fitted in the engine-cooling chute.

◇ ◇ ◇

The Sparrow Hawk being flown by Mr. Victor Smith is a new machine, but is similar to "D N L" and "D W W."

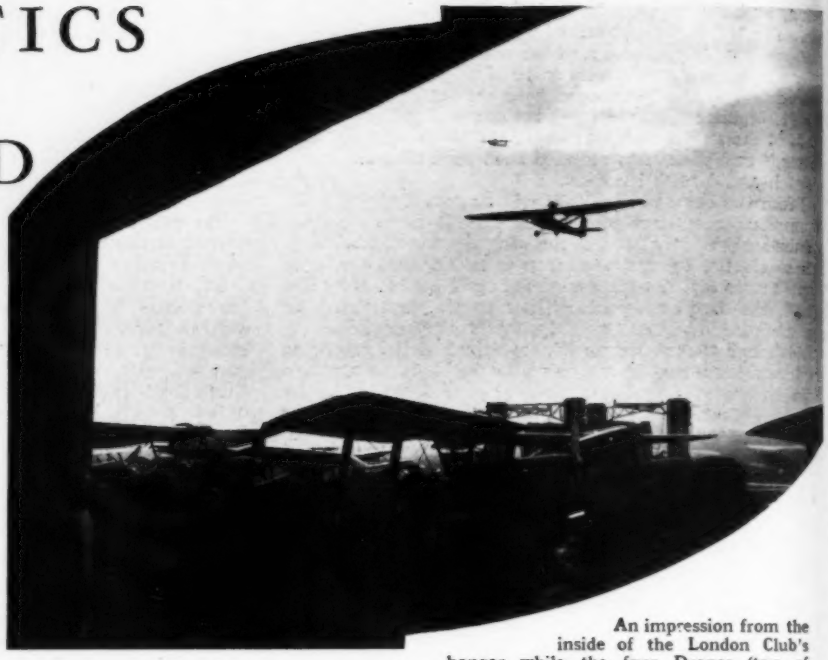


Mr. Ken Waller and Capt. Max Findlay investigate the construction of their Cheetah IX Airspeed Envoy at Portsmouth.

AQUATICS at HATFIELD

Bad Weather for the London Aeroplane Club's Garden Party: "Little and Good" Flying Display Carried Out Despite the Rain

Illustrated by "Flight" photographs



An impression from the inside of the London Club's hangar while the four Drones (two of them to be seen) shoot-up the surrounding landscape. A part of the Club fleet stands without.

WHATEVER may be said about the British climate in general, a flying club can surely be considered to be unlucky when, on the day of its one important annual event, the sky is overcast and the rain descends in a solid mass at depressingly regular intervals. The London Aeroplane Club was particularly unlucky because the Hatfield garden party is usually a garden party in the fullest meaning of the words, with amusing ground events (planned for the active participation of all and sundry) interspersed between the flying shows—a scheme which has a lot to recommend it, since the normal visitor at a club show finds anything but the most superb flying to be somewhat boring.

As it was, the ground events had to be rubbed out last Saturday, and it was more than fortunate that the few flying events were of a very high standard indeed. In spite of the fact that the morning was far from promising and that the afternoon produced the expected rain, there was a very good attendance of terrestial visitors, though the paucity of aerial arrivals (for meteorological reasons) may best be gathered from the fact that the winner of the arrival competition, Mr. A. Zweigbergk (Aeronca), a Club member, was only within seven minutes of the sealed time. The familiar radio masts were only just in sight when it was not raining.

Disregarding the spectacular entry of F/O. King (Tiger Moth) over the clubhouse while the first of four Drones to arrive made its circuit, the afternoon's entertainment opened with a typical demonstration of the American Taylor Cub by Mr. Field-Richards. He did everything except roll, and wound up his display with a little mildly crazy flying—coming in fast and getting rid of his speed in a series of exaggerated swish-tails. Later we were to be shown what crazy flying really means. Thereafter, Mr. Marsh, who had come over with Mr. Brie (who had been slightly injured in the leg by an air-screw) in one and the same Autogiro, showed us that this machine will do almost everything asked of it, though he must have hated the virtually flat calm as much as he liked the machine's wide speed range while coming over from Hanworth in Q.B.I. conditions. Meanwhile, certain optimistic people had been endeavouring to lose long-distance heavier-than-air toy balloons, most of which stayed on the ground.

It is a pity that the most difficult aerobatics are rarely the most spectacular when viewed from the ground, and Flt. Lt. W. E. P. Johnson's display on one of the club Tigers was probably not appreciated as it should have been. At this moment, too, the rain elected to descend more heavily than ever, so that his efforts were severely hampered by the poor visibility. He wound up his show by climbing high and doing an inverted spin—a manœuvre which few of the spectators had ever seen, let alone done.

However, rain or no rain, it was impossible not to appreciate F/O. G. S. King's tree-fighting display with one of the Reserve Tigers. The denizens of Hatfield are lucky because only at that aerodrome does King ever shake the spectatorial nervous system. His show can only be described as terrific to the point of being actively dangerous, since he depends exclusively on his engine at

Mr. R. O. Shuttleworth, in the cockpit of his cross-Channel Bleriot, chats to Mr. A. E. Grimmer, who, in 1911, bought and flew the original from the remains of which this perfect replica was rebuilt.

As may be gathered, this picture was taken during one of the few bright intervals. Mr. Hugh Buckingham with Major and Mrs. Hereward de Havilland at the Hatfield party.

times. Even Gipsy engines have been known to fail—and the strain must be quite considerable when the throttle is being used like a pump handle. There was at least one moment when such a failure would have landed the Tiger in the Barnet by-pass, or even among the spectators. His show was, however, profoundly stirring, and made one wonder whether there was anything that couldn't be done with a Tiger in the hands of a really expert and dashing pilot.

Remembering the possible number of weak hearts amongst the crowd, it was a good thing, perhaps, that F/O. King's *pièce de resistance* was a failure. He took a dummy up with him with the idea of throwing it out at a suitable moment, and then, presumably, of doing some crazy flying while sitting more or less out of sight. Unfortunately, Major Sandbags-King wrapped himself around the fin and rudder, and a landing had to be made in order to extricate the Major from this dangerous position. King certainly has a sense of macabre humour, but his efforts with the blind-flying hood apparently covering the cockpit were quite unnerving enough for the majority of the spectators.

During the interval for tea Mr. Kronfeld arrived with the new Carden-engined Drone, and afterwards an unexampled number of Drones flew in formation and otherwise round Hatfield. They were piloted by Mr. Kronfeld himself, by Mr. Collins (the Drone demonstration pilot), by Mr. Elliott, and by Mr. Dimmock (who took his air-minded infant with him, to the terror and delight of the ladies; we were all glad when the prodigy was returned safely to terra cotta). This show somewhat compensated for the fact that five other ultra-light-weights had failed to turn up either because they had been crashed or because of the weather.

Return to 1909

Meanwhile, the day's really big event had taken place. Mr. Shuttleworth taxied out his cross-Channel-replica Bleriot and made three very successful "straights," climbing to a greater altitude than had previously been reached with this machine. If the engines of some of our 1936 light aeroplanes started as easily as did this genuine fan-type Anzani we should have little to grumble about. Apparently, the machine is unpleasantly tail-heavy, and Mr. Shuttleworth may make a pure museum-piece of it in the future rather than alter it in any way; he has a Deperdussin coming along.

Not to be confused with the full-size flying, the demonstrations of model aircraft were, nevertheless, just as interesting as anything else, though the model-makers spent most of their time making minor repairs after the seemingly inevitable landing crack-ups. Few people can have realised how important it is for a model expert to be in good training! The owner of one machine made at least two trotting trips right across the aerodrome in chase of his circling model, and none of the owners were in the least upset when the culmination of months of work flew strongly into the ground.

Neither are swimming demonstrations, mannequin parades, and dancing to be confused in any way with aviation—but everyone enjoyed the rest of the afternoon and evening a good deal more than they might have done had flying continued, with the aid of flares and the Hatfield beacon, until the small hours. Moral: Don't overdo the flying business.

A hanging windsock and open umbrellas tell their tale while F/O. King winds up his nerve-shattering display.

Forthcoming Events

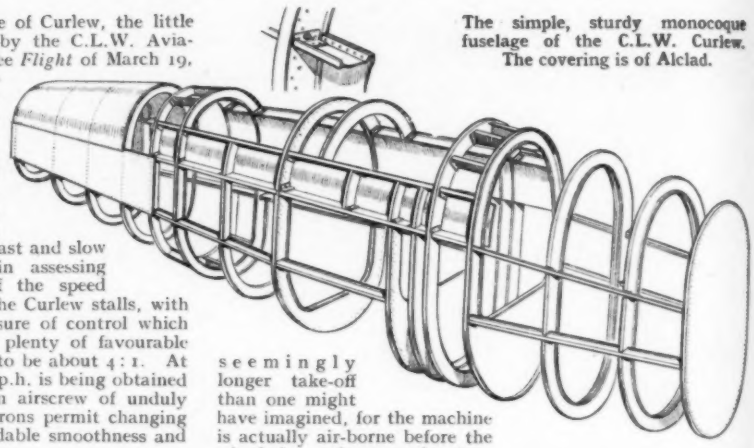
September 18. Three Counties Air Race, Hereford.
September 19. Cardiff Aeroplane Club: London-Cardiff Race.
September 20. London Air Park Club: Display.
September 29. London-Johannesburg Race.
October 8. R.Ae.S. Lecture*: "Tapered Wings," by Dr. G. V. Lachmann.
October 22. R.Ae.S. Lecture*: "Economics of Airline Operation," by Mr. L. T. H. Greig.
October 25. Aero Club de France: Saigon Race.
October 30. Croydon Airport Staff Ball.
November 12. R.Ae.S. Lecture*: "Skin Friction," by Dr. F. W. Lanchester.
November 13-29. International Aero Exhibition, Paris.
November 19. R.Ae.S. Lecture*: "Aerodrome Design," by Mr. Nigel Norman.
December 10. R.Ae.S. Lecture*: "Civil Flying Boats," by Mr. A. Gouge.
December 17. R.Ae.S. Lecture*: "Profile Drag," by Prof. Melvill Jones.

*All R.Ae.S. lectures take place at the Royal Society of Arts, 18, John St., London, W.C.2, at 6.30 p.m. Admission is by ticket obtainable through a member.

PRIMARILY for TRAINING

C.L.W. Curlew Flying at Gravesend : Original Features of Design : Excellent Control Apparent

WITH the aptly chosen type-name of Curlew, the little T.1 training monoplane built by the C.L.W. Aviation Co. Ltd., of Gravesend (see *Flight* of March 19, 1936) is now completing preliminary test flights which promise to excel the most sanguine hopes of its constructors. Although at the time of the demonstration at Gravesend last Thursday the machine was flying under a restricted licence, which permitted no aerobatics, its performance promised quite exceptionally well. Capt. A. N. Kingwill was the demonstrator, and his exhibition of fast and slow flying left little to the imagination in assessing the qualities of control at both ends of the speed range. Loaded to about 14lb./sq. ft., the Curlew stalls, with flaps down, at 38 m.p.h., and the measure of control which persists at speeds of that order evoked plenty of favourable comment. The gliding angle is claimed to be about 4 : 1. At the upper end of the speed range (125 m.p.h. is being obtained with the Pobjoy Niagara III driving an airscrew of unduly fine pitch) the short span and Frise ailerons permit changing from one bank to another with commendable smoothness and celerity.



The simple, sturdy monocoque fuselage of the C.L.W. Curlew. The covering is of Alclad.

Structurally, it will be remembered, the Curlew is a cantilever low-wing monoplane with a wing of patent design. Tapering both in plan form and thickness this is built round a single main spar and consists of an open box-like structure, the front and rear members being inter-connected and affixed to the spar with cantilever ribs. Upper and lower surfaces are provided with diagonal cross bracing. The manually operated flaps extend from aileron to aileron.

Alclad covering is used for the stressed skin monocoque fuselage from which the tail plane, and fin, are readily detachable. Metal covering is employed throughout except for the main wing panels.

The undercarriage legs have a 3in. compression and 6in. travel and there, without a doubt, lies the reason for a seemingly longer take-off than one might have imagined, for the machine is actually air-borne before the wheels leave the ground. Sqn. Ldr. F. W. H. Lerwill, one of the directors of the C.L.W. Aviation Co. Ltd., who knows far more about flying training than most people, does not advocate brakes in a primary trainer, reasoning that they result in more gadgets and are liable to lead an embryo pilot into trouble.

The design has been planned for almost any engine up to 140 h.p. and it is likely that the Gipsy Major will be fitted in some future machines of the type. The 90/95 h.p. Pobjoy Niagara III has the new model deep-chord Pobjoy cowling and dual engine-driven pumps.

The tare and gross weights of the prototype are respectively 970lb. and 1,500lb.

A general arrangement drawing appeared in *Flight* of March 19 last.

It will be gathered from a comparison of the two photographs on this page that the undercarriage of the Curlew has a long travel. Note also the unusually roomy cockpits.

THE ROYAL AIR FORCE

SERVICE NOTES AND NEWS — AIR MINISTRY ANNOUNCEMENTS

TRANSFER OF OFFICERS TO THE RESERVE

The undermentioned short service and medium service officers should note that they become due in next February and March for transfer to the reserve on completing their period of service on the active list:—

GENERAL DUTIES BRANCH

Flight Lieutenants:—Richard Vernon Alexander, Brian Everard Lowe, William John Brighty, Hector Ivo Dabinett, Maurice Henry Kelly, John Ross Palmer, Christopher Herbert Schofield, Phillip Arthur de Gleichen Tettenborn, Reginald John Twamley, George Burdick, Ralph Ian George MacDougall, William Arthur John Satchell, Henry Augustus Simmons, Reginald Geoffrey Wilde, and Anthony George Carl Somerhough.

Flying Officers:—Alexander Ninian Spottiswoode, The Hon. Edward Frederick Ward, The Hon. George Reginald Ward, John Russell Watson, William Harold Forbes Mitchell, William McAdam McAulay, Wilfred Leslie Stedman, and Hugh Vaughan Horner.

SPECIALIST SIGNALS COURSE

The undermentioned officers, having successfully completed the specialist signals course at the Electrical and Wireless School, Cranwell, which terminated on June 26, are granted the symbol "S":—

Flight Lieutenants:—J. G. Cardale, F. C. Daubney, N. G. Goodman, A. McIlwaine, C. C. McMullen, A. D. Messenger, G. H. O. Mills, R. Monks, Q. W. A. Ross.

The undermentioned officer of the Royal Canadian Air Force also successfully completed the course: Flt. Lt. R. E. McBurney.

The undermentioned officer has been selected to attend the "S*" course at Cambridge University: Flt. Lt. J. G. Cardale.

R.A.F. FOOTBALL ASSOCIATION

Honorary Secretary and Treasurer.—Flt. Lt. F. Porter has succeeded Flt. Lt. W. R. Worstall as Hon. Secretary and Treasurer of the R.A.F. Football Association His address is: Flt. Lt. F. Porter, No. 2 (Bomber) Group, Royal Air Force, Abingdon, Berks.

No. 70 SQUADRON REUNION DINNER

The annual reunion dinner for past and present officers of No. 70 Squadron will be held on Friday, October 16, at the Royal Air Force Club, 128, Piccadilly, W.1. Particulars may be obtained from the honorary secretary, Captain C. D. Griffiths, c/o Royal Air Force Club.

R.A.F. BENEVOLENT FUND

The usual meeting of the Grants Committee was held at Iddesleigh House on Monday, September 7. Mr. W. S. Field was in the chair, and the other members present were:—Air Comdre. B. C. H. Drew, O.B.E., Group Capt. C. H. K. Edmonds, D.S.O., O.B.E., and Air Vice-Marshal C. A. H. Longcroft, C.B., C.M.G., D.S.O., A.F.C. The Committee made grants to the amount of £285 6s. 4d. The next meeting was fixed for September 21.

TEST "CALL OUT" OF THE OBSERVER CORPS

In consequence of the expansion of the Royal Air Force the area covered by the Observer Corps has been extended and the number of Observer Groups has been correspondingly increased to meet the new requirements of the Air Defence of Great Britain.

In order to test the arrangements by which observers are instructed to report for duty when required, it has been decided to institute a surprise "call out" of the whole of the Observer Corps, and this will take place in the near future. Records will be made of the numbers reporting at their place of duty within a stipulated period.

FLYING ACCIDENT

The Air Ministry regrets to announce that Lt. Francis Stanley May, Royal Marines, Flying Officer, Royal Air Force, died on September 7, as the result of injuries received in an accident which occurred at Hal Far, Malta, on the same day to an aircraft of No. 802 (Fleet Fighter) Squadron. Lt. May was the pilot and sole occupant of the aircraft.

ROYAL AIR FORCE GAZETTE

London Gazette, September 8, 1936

General Duties Branch

The following Flight Lieutenants are granted permanent commissions in that rank with effect from the dates stated:—G. P. Macdonald, V. D. Morshead, and A. C. Mitchell (June 1); J. G. Cardale (July 10).

The following are granted short service commissions as Acting Pilot Officers on probation with effect from and with seniority of the dates stated:—

AUGUST 4

C. L. G. Back, M. V. Baxter, T. H. Clarke, R. M. Cowell, C. G. H. Crusoe, J. G. P. Greenwood, F. C. Griffiths, R. H. Hain, J. R. Havers, E. Holden, A. E. Hyde-Parker, G. C. Kain, D. F. Laslett, G. W. De V. Le Sueur, H. J. Lyon, R. E. G. Morewood, B. A. Mortimer, C. T. Norman, E. J. Palmer, L. H. W. Parkin, H. B. M. Pearson, C. D. W. Price, G. L. M. Schrader, W. A. Sykes, D. G. Tomlinson, H. C. Tootal, R. G. M. Walker, E. A. Warfield, R. F. Weatherill, and M. Wyatt.

AUGUST 6

J. F. H. Booth, B. Brooke, A. R. Cooper, D. M. Doran, J. S. Douglas-Cooper, J. S. Dunlevie, L. H. Hunt, R. H. McClatchey, B. A. Miller, W. H. Powdrell, R. H. Rice, G. V. T. Shaen-Carter, and G. E. Watkins.

Lt.-Cdr. J. E. Fenton, R.N., is re-attached to the Royal Air Force as a Flight Lieutenant, with effect from August 27, and with seniority of July 1, 1933.

Pilot Officer on probation R. W. G. Kitley is confirmed in rank (June 12).

The following Flying Officers are promoted to the rank of Flight Lieutenant, with effect from the dates stated:—W. P. Harvey (July 11); W. H. N. Turner (July 25); W. R. Cox, T. F. U. Lang, R. S. Ryan, P. I. Harris, and A. P. S. Wills (July 28); P. F. Foss, Hon. G. R. Ward, and Hon. E. F. Ward (August 11).

The following Pilot Officers are promoted to the rank of Flying Officer (June 15):—A. J. Whillier, H. C. Sawyer.

Lt. G. K. Horsey, R.N., Flying Officer, R.A.F., takes rank and precedence as if his appointment as Flying Officer bore date July 21, 1936, immediately following F/O. E. J. Boyle (Lt., The King's Own Scottish Borderers) in the gradation list. Reduction takes effect from July 21, 1936.

The following Lieutenants, R.N., Flight Lieutenants, R.A.F., cease to be attached to the Royal Air Force, on return to naval duty:—A. F. Hall (August 8); P. H. Havers (August 10).

Sqn. Ldr. W. E. Reason is placed on the retired list (August 25); Flt. Lt. A. A. Jones is placed on the retired list (August 22); Flt. Lt. H. W. A. Chesterman resigns his permanent commission (August 15).

The short service commission of Acting Pilot Officer on probation K. O. D. Lindsay is terminated on cessation of duty (August 14).

Medical Branch

Flt. Lt. F. E. Lipscomb, M.R.C.S., L.R.C.P., D.P.H., D.T.M. and H., is promoted to the rank of Squadron Leader (August 15); Flt. Lt. G. W. McAleer, M.B., Ch.B., D.T.M. and H., is promoted to the rank of Squadron Leader (September 1).

Dental Branch

F/O. L. C. Bellsham-Revell ceases to be seconded to Guy's Hospital with effect from August 1.

Memorandum

H. J. H. Dicksee is permitted to retain the rank of Lieutenant on his discharge from the ranks of the Territorial Army (November 2, 1934).

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers

General Duties Branch

D. G. W. Somerville is granted a commission as a Flying Officer in Class A (July 20); Wing Cdr. T. B. Marson, M.B.E., is granted a commission as a Flight Lieutenant (Hon. Wing Commander) in Class C (May 23); Flt. Lt. G. R. Hicks, D.F.C., is granted a commission in that rank, in Class C (June 8); F/O. E. J. Spearing

(R.A.F., retired) is granted a commission as a Flight Lieutenant in Class C (July 10); Flt. Lt. E. H. Fielden, A.F.C., is promoted to the rank of Wing Commander (July 22).

The following Flying Officers are granted the honorary rank of Flight Lieutenant on the dates stated:—R. L. Bennet (June 18); D. M. Harrison (July 20).

F/O. M. Wyatt relinquishes his commission on appointment to a short service commission in the Royal Air Force (August 3).

Medical Branch

Flt. Lt. A. T. G. Thomas, M.B., B.S., D.P.H., is granted a commission in that rank, in Class D, on relinquishing his commission in the Auxiliary Air Force (July 7); F/O. T. A. Hunt, M.B., Ch.B., is promoted to the rank of Flight Lieutenant (April 18).

SPECIAL RESERVE

General Duties Branch

P/O. R. M. Broadhead resigns his commission on the conversion of the Special Reserve to the Auxiliary Air Force (May 18).

AUXILIARY AIR FORCE

General Duties Branch

No. 500 (County of Kent) (Bomber) Squadron.—P/O. P. Green is granted a commission in that rank with effect from May 25 and with seniority of March 12, 1935. (Substituted for the notification in the *Gazette* of August 11.)

No. 501 (County of Gloucester) (Bomber) Squadron.—P. H. Rayner is granted a commission as Pilot Officer (July 21).

The following Pilot Officers are granted commissions in that rank with effect from May 1 and with seniority of the dates stated:—C. E. Malfroy (May 8, 1935); N. L. Westbury-Jones (July 29, 1935). (Substituted for the notification in the *Gazette* of July 28.)

No. 503 (County of Lincoln) (Bomber) Squadron.—P/O. R. H. Smith is granted a commission in that rank with effect from May 1 and with seniority of September 14, 1935. (Substituted for the notification in the *Gazette* of July 28.)

No. 504 (County of Nottingham) (Bomber) Squadron.—P/O. R. M. Broadhead is granted a commission in that rank with effect from May 18 and with seniority of July 18, 1934.

The following Pilot Officers are granted commissions in that rank with effect from May 18 and with seniority of the dates stated:—J. A. F. Mertens (September 9, 1935); G. Greaves (October 16, 1935); J. B. Parnall (July 11, 1935); J. C. Reynolds (April 13, 1935). (Substituted for the notification in the *Gazette* of July 28.)

No. 600 (City of London) (Fighter) Squadron.—E. S. Smith is granted a commission as a Pilot Officer (July 10); F/O. R. F. G. Lea resigns his commission (July 22).

No. 601 (County of London) (Fighter) Squadron.—The following Pilot Officers are promoted to the rank of Flying Officer:—Sir Archibald Philip Hope, Bt. (July 25); H. S. Cavendish (July 3).

No. 603 (City of Edinburgh) (Bomber) Squadron.—P/O. C. A. G. Thomson is promoted to the rank of Flying Officer (July 9).

No. 604 (County of Middlesex) (Fighter) Squadron.—The following are granted commissions as Pilot Officers:—P. C. F. Lawton (July 4); J. D. St. C. Olliff-Lee (July 4); F/O. R. Rendle relinquishes his commission on completion of service (May 15).

No. 605 (County of Warwick) (Bomber) Squadron.—The following are granted commissions as Pilot Officers:—P. J. Danielsen (July 6); G. R. Edge (July 11); B. E. Feilding (July 11). F/O. W. B. Beale is promoted to the rank of Flight Lieutenant (April 21); Flt. Lt. G. V. Perry resigns his commission (April 21).

No. 610 (County of Cheshire) (Bomber) Squadron.—The following are granted commissions as Pilot Officers:—J. A. Leathart (June 15); J. K. Wilson (June 14).

Accountant Branch

No. 603 (City of Edinburgh) (Bomber) Squadron.—P/O. T. C. Garden is promoted to the rank of Flying Officer (July 13).

Medical Branch

No. 604 (County of Middlesex) (Fighter) Squadron.—Flt. Lt. A. T. G. Thomas, M.B., B.S., D.P.H., relinquishes his commission on completion of service (July 7).

AUXILIARY AIR FORCE RESERVE OF OFFICERS

General Duties Branch

G. V. Perry is granted a commission as a Flight Lieutenant in Class A (April 21); R. Rendle is granted a commission as a Flying Officer in Class A (May 15); R. F. G. Lea is granted a commission as a Flying Officer in Class C (July 22).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Air Marshals.—Sir A. M. Longmore, K.C.B., D.S.O., to Special Duty List; on appointment as Commandant of the Imperial Defence College, 1.9.36. P. B. Joubert de la Ferté, C.B., C.M.G., D.S.O., to Headquarters, Coastal Command, Lee-on-the-Solent; on appointment as Air Officer Commanding-in-Chief, vice Air Marshal Sir A. M. Longmore, K.C.B., D.S.O., 1.9.36.

Air Vice-Marshal.—E. L. Gossage, D.S.O., M.C., to No. 11 (Fighter) Group, Uxbridge; on appointment as Air Officer Commanding vice Air Marshal P. B. Joubert de la Ferté, C.B., C.M.G., D.S.O., 7.9.36.

Group Captain.—E. J. P. Burling, D.S.C., D.F.C., A.F.C., to Marine Aircraft Experimental Establishment, Felixstowe; to command vice Group Capt. A. J. Miley, O.B.E., 25.8.36.

Wing Commanders.—R. M. Drummond, D.S.O., O.B.E., M.C., to R.A.F. Station, Northolt; to command, 4.9.36. J. S. T. Fall, D.S.C., A.F.C., to R.A.F. Station, Upper Heyford; to command vice Air Comdre. G. R. M. Reid, D.S.O., M.C., 4.9.36. J. J. Williamson, A.F.C., to Home Aircraft Depot, Henlow; for Administrative duties in No. 2 (Training) Wing, vice Wing Cdr. J. A. Sadler, 2.9.36. W. Sowrey, D.F.C., A.F.C., to Home Aircraft Depot, Henlow; for Administrative duties, vice Group Capt. A. S. Morris, O.B.E., 1.9.36.

Squadron Leaders—V. Croome, to No. 66 (F) Squadron, Duxford; to command, 20.7.36. W. V. Hyde, to No. 151 (F) Squadron, North Weald 31.8.36; to command. L. G. Maxton, A.F.C., to No. 10 Flying Training School, Tern Hill: for Administrative duties, vice Sqn. Ldr. G. G. Walker, M.C., 25.8.36. D. F. Anderson, D.F.C., A.F.C., to D.O.I., Dept. of C.A.S., Air Ministry, vice Sqn. Ldr. C. E. Barraclough, 1.9.36. E. C. Barlow, to No. 11 Flying Training School, Wittering; for flying duties in Advanced Training Squadron, vice Sqn. Ldr. C. E. H. Allen, D.F.C., 1.9.36. D. V. Carnegie, A.F.C., to D.S.D., Dept. of C.A.S., Air Ministry, vice Wing Cdr. R. M. Drummond, D.S.O., O.B.E., M.C., 4.9.36. R. T. B. Houghton, A.F.C., to No. 23 (Training) Group, Grantham; for Air Staff duties, 6.9.36. N. C. Ogilvie-Forbes, to Headquarters, Bomber Command, Uxbridge; for Navigation duties, vice Sqn. Ldr. G. H. Harrison, D.F.C., 3.9.36. E. Thornton, to Headquarters, Fighter Command, Stanmore; for equipment (Engineer) Staff duties, 4.9.36. M. H. Ely, to D.O.I., Dept. of C.A.S., Air Ministry, vice Wing Cdr. H. B. Russell, D.F.C., A.F.C., 1.9.36. S. E. Toomer, D.F.C., to Special Duty List; on exchange with Royal Australian Air Force Officer, 29.8.36.

Flight Lieutenants.—J. W. B. Judge, to No. 4 Flying Training School, Abu Sueir, Egypt, 19.8.36. J. D'A. Keary, to Headquarters, R.A.F., Middle East, Cairo, Egypt, 19.8.36. A. P. F. M. Berkeley, to R.A.F. Station, Donibristle, 1.9.36. K. B. B. Cross, to R.A.F. Station, Duxford, 1.9.36. H. A. V. Hogan, to Central Flying School, Upavon, 31.8.36. J. R. H. Pott, to No. 504 (County of Nottingham) (B) Squadron, Hucknall, 1.9.36. E. C. Smith-Ross, to R.A.F. Record Office, Ruislip, 28.8.36. A. W. Vincent, to No. 83 (B) Squadron, Turnhouse, 27.8.36. K. R. Warton, to No. 6 (Auxiliary) Group Headquarters, London, 1.9.36.

Flying Officers.—P. S. Gomez, to Headquarters, Coastal Command, Lee-on-the-Solent, 1.9.36. C. F. C. Wright, to No. 1 School of Technical Training (Apprentices), Halton, 31.8.36. W. G. Devas, to Aircraft Park, Lahore, India, 6.8.36. P. de G. Seymour, to No. 34 (B) Squadron, Abbotsinch, 28.8.36.

Pilot Officers.—F. S. D. Burgis, to Headquarters, No. 22 (Army Co-operation) Group, South Farnborough, 25.7.36. P. Ruston, to No. 604 (County of Middlesex) (B) Squadron, Hendon, 13.8.36. J. B. Pascoe-Webb, T. N. K. Walker, to No. 66 (F) Squadron, Duxford, 20.7.36.

Acting Pilot Officers.—G. L. Malcomson, to No. 3 Flying Training School, Grantham; on appointment to a short service commission as Acting Pilot Officer (on probation), 24.8.36.

The undermentioned are posted to the units shown with effect from 24.8.36:—A. J. Banham, N. G. C. Heath, to No. 19 (F) Squadron, Duxford. M. N. Crossley, to No. 32 (F) Squadron, Biggin Hill. F. J. L. Donaldson, G. W. C. Gleed, T. N. Partridge, to No. 40 (B) Squadron, Abingdon. J. A. Thomson, to No. 56 (F) Squadron, North Weald. J. C. Claydon, E. J. Little, D. E. A. Williams, to No. 101 (B) Squadron, Bicester. G. Beavis, A. H. Smythe, to No. 218 (B) Squadron, Upper Heyford. A. M. Jardine, to School of Air Navigation, Manston. J. Beavis, P. M. J. Evans, C. P. V. Hervey, G. R Shepley, A. W. T. Traill, to School of Army Co-operation, Old Sarum. W. H. Cliff, A. Gadd, J. G. Kerby, J. A. Richardson, T. E. Shrapnell-Smith, to R.A.F. Station, Gosport.

Stores Branch

Squadron Leader.—W. St. J. Littlewood, to Supply Depot, Palestine and Transjordan, Sarafand; for Stores (Supplies) duties, 19.8.36.

Flying Officers.—G. A. Durnford, to R.A.F. Station, Scampton, 27.8.36. T. King, to No. 1 Stores Depot, Kidbrooke, 17.8.36.

Accountant Branch

Flight Lieutenant.—F. W. Judge, to R.A.F. Station, Turnhouse, 29.8.36. N. Wallett, to No. 9 Flying Training School, Thornaby, 4.9.36.

Medical Branch

Flight Lieutenants.—G. W. Paton, to R.A.F. Depot, Middle East, Aboukir, Egypt, 14.8.36. R. G. James, to R.A.F. Depot, Middle East, Aboukir, Egypt, 7.8.36. T. W. Wilson, to R.A.F. Station, Farnborough; on re-employment on the active list, 27.7.36.

Flying Officers.—F. L. Whitehead, to No. 8 Flying Training School, Montrose, instead of to No. 9 Flying Training School, Thornaby, as previously notified, 18.8.36. H. C. de B. Milne, to No. 8 (B) Squadron, Aden, 7.8.36.

Private Flying

Topics of the Day

Graduation

THE other day I heard that a certain well-known club is pondering on the possibilities of what may be considered as a new method of training. Instead of placing the *ab initio* pilot firmly in the cockpit of the machine which he will eventually use for his more advanced training, he will be placed first at the controls of some machine in which good control qualities have, to some extent, been sacrificed for the sake of safety and, in particular, of landing ease.

When the pupil has learnt to handle this machine with tolerable safety and certainty he will be taken up in the more difficult type. The main theory behind the whole scheme appears to be that the novice will more quickly gain that most important attribute of the pilot—confidence. Once he has realised that it is comparatively easy to learn to fly, the difficulties involved in flying the slightly more advanced type will not dishearten him to the extent of making him refuse the responsibilities of control after, for instance, a bad bounce. Some pupils waste hours of good training time because they *will* leave it to the instructor to get them out of a temporary jam.

A Logical Scheme

DESPITE anything that may be said by the hard-boiled instructor of the old school, there is nothing intrinsically "wet-nurse" about this scheme. Who, for instance, would consider sending a pupil on his first solo with a Supermarine Spitfire? Before flying such a machine the Service pilot will have graduated from an Avro Tutor (which, in a great many ways, is easier to fly and to land than a Gipsy Moth) to a Hart Trainer and a Fury, though in all probability the Spitfire, apart from a greater multiplicity of gadgets, is no more difficult than any of the others. The whole point is that the machine is *different*.

The essential features of a machine for the absolute novice would probably consist of a perfect view of the ground, a viceless stall and a moderately foolproof landing. I am quite convinced that the pupil's biggest difficulty while learning to land the ordinary training type is that he cannot see straight forward or downwards in the direction in which it is easiest to judge relative height. The results are that he holds off too high, or not at all, and develops all manner of wing-down or drift vices because he must, perforce, look out sideways at the very moment when he is inclined to hold everything very tightly.

Whenever I fly a biplane training type now I wonder how on earth I ever managed to learn—and in those days the engine was higher in the machine and was not inverted. More often than not I bring the machine in with a bit of drift in order to retain some sort of view of the aerodrome, and land with a feeling of complete blindness, wondering whether the ground really is where I arranged for it to be during the checking and holding-off process. The front seat is undoubtedly the best (and the warmest in winter), though you arrive first in the event of trouble!

"Flight Strips"

VERY shortly after the appearance of my notes dealing with the necessity of providing ground signs for the benefit of pilots flying in conditions of bad visibility I learnt that the U.S. Senate Sub-Committee on Commerce had shown considerable interest in the development of "flight strips."

Briefly, there are flat areas arranged at intervals beside main roads, and are intended largely as emergency landing grounds. The highway authorities are expected to lay them out, and these authorities, of course, receive any revenue accruing from their use either as aerodromes, parking places or camping sites.

Needless to say, these "flight strips" are planned for landings in two directions only, and are 1,800 to 5,000ft. long and 140 to 740ft. wide. In a large continent such as America, where the prevailing winds may be comparatively stable over large areas, there might be something in this idea, but in this country it is very doubtful whether the plan would be of any real value. If all the strips were arranged in a north-east south-west line—covering a direction which may reasonably be taken as that along which our prevailing winds blow—off-wind landings would be necessary on more than 75 per cent. of the days of the year, and the majority of amateurs would consider the risks of a normal forced landing in a suitable field to be smaller than those involved in the business of pulling off such landings in an already restricted space.

Across Wind

IF such two-way landing grounds were plentiful, then obviously our amateur pilots would take their cross-wind instruction and practice much more seriously, and our constructors would need to pay rather more attention to the more frequent stresses taken by the undercarriages of light aeroplanes.

As it is, most of us do perhaps an hour of cross-wind dual and consider then that we know enough about it for emergency use. I did six take-offs and landings some two or three years ago, and since then my practice has consisted only of putting on a little artificial drift when I have found myself landing accidentally slightly out of wind Even then it is more usual to go round again and strike another mental average between three violently swinging socks.

With the normal light aeroplane I should simply hate to make a practice of doing cross-wind landings and take-offs. Most of these machines weather-cock too badly after the touch-down and some of them, in any case, have not got sufficiently pwerful controls near the stall to make such manœuvres safe as a regular practice. INDICATOR.

Private Flying

FROM the CLUBS

Events and Activity at the Clubs and Schools

LONDON

LAST week's flying was curtailed by bad weather, but, nevertheless, 75 hr. 45 min. were logged. Mr. D. Grahame Hutton went solo, and the following became members: Miss M. J. King, Messrs. L. G. Nylund, J. N. Scott, D. Maitland, N. R. Armitage, and J. Westmacott.

LIVERPOOL

The flying total for August at the Liverpool and District Aero Club was 350 hours. The new Tigers are highly popular.

NORTHAMPTONSHIRE

The "dawn patrol" on Sunday, September 6, was well attended, raiding machines coming from aerodromes as far apart as Hull and Portsmouth. In all, sixteen machines "attacked," five winning through.

NORFOLK AND NORWICH

Nearly 50 hours' flying was logged by the Norfolk and Norwich Club last week. Visiting machines included two Vega Gulls, flown by Flt. Lt. Christopher Clarkson and Mr. C. S. Napier, and Mr. W. Humble's Hawk Speed Six fresh from its win in the Newcastle race.

DONCASTER

Club machines flew 10 hr. 50 min. during the week ending September 11. The aerodrome was unusually active because of the St. Leger meeting and sixty-six machines arrived, bringing a total of 186 passengers.

CASTLE BROMWICH

Dr. G. F. Henderson has passed his "A" licence tests. Flying times for the week ending September 11 were 10 hr. 10 min. dual and 12 hr. 45 min. solo and passenger. Mr. J. C. Ginder has joined as an ordinary member.

CAMBRIDGE

For the week ending September 13, on one day of which no flying was possible owing to high winds, flying times at Marshall's Flying School, The Cambridge Aero Club, and the University Aero Club, totalled 40 hr. 20 min. Mr. Lyon has passed his "A" licence tests.

READING

Messrs. Torins, Bingham and Tyson have gone solo, and Messrs. Godley, Tyson and Peckham have become pupils. Mr. Van Deure has taken his "A" licence, and Mr. Houlding has renewed his "ticket." Miss Warner and Miss Robinson are flying on Hawk Majors. The flying time last week was 50 hr. 25 min.

SOUTH COAST

Although the evenings are shorter, over 35 hours' flying was done on Club machines last week. Mr. H. G. Reed went solo. One member, Mr. Parker, won a free breakfast at Northampton's "dawn patrol" last Sunday. Mr. Frost, accompanied by Mr. Smallman, the secretary, is going for a European holiday in a Gipsy II Moth next week.

BRISTOL

Mr. Kenneth Lalonde has been elected a director of the Club. Mr. Lalonde learned flying under the Tatler scheme in 1930. Flying time for the week ending September 12 was 22 hr. 50 min. Mr. E. G. Davies has completed the tests for his "A" licence and Messrs. J. A. King, W. K. Kinnersley, and J. A. E. Morley have become new members.

YAPTON

The Club instructor, Mr. W. J. Alington, is undergoing reserve training at Yatesbury, and the chairman, Flt. Lt. A. L. Duke, has assumed control of flying operations. One of the Moths is with Air Travel at Gatwick, and will return fitted with night-flying equipment. Experiments are being made with a floodlight and dual in night flying will be available to "B" licence pupils in a few days.

BORDER

August was a good flying month in more ways than one. The Border Flying Club increased their monthly total of hours flown to 130 hr. 20 min., and the air services calling at the aerodrome carried more passengers than during the whole of 1935. If the traffic in 1937 increases in proportion it will be necessary to augment the present booking facilities very considerably. Plans with this end in view are under consideration.

C. A. S. C.

Weather caused the postponement of the trip to Le Touquet, and no flying was done before lunch on Sunday. In the afternoon, however, 5 hr. 30 min. was flown. Mr. F. C. H. Taylor, who already has his "A," flew with the Corps for the first time. Mrs. Branson and Mr. Mayhew have gone solo, and Mr. R. E. Munday has made his "B" licence night flight. There are five new flying members. Flying time for the week ending Friday, September 11, was 69 hours.

WITNEY AND OXFORD

The fortnight ending Septmeber 12 produced 33 flying hours, of which twenty represented solo flying. Eighty hours were flown during August. Messrs. T. L. Page and V. A. Dawson have joined for instructor's courses.

HANWORTH

The Club has now taken delivery of two Aeroncas which will be available for hire toward the end of this week. The Club Leopard was hired last week by Mr. B. Brady for a trip to Lee-on-Solent. Messrs. O. Adler and P. O'Neill have gone solo, and Mr. D. Naismith and Mr. Dayrell (Royal Naval Flying Club) have become members. Last week's flying time was 63 hours. The Club looks forward to a record attendance at the Garden Party on September 20.

LANCASHIRE

After a lapse, the bulletin of the Lancashire Aero Club is in publication again. Mr. J. Harrop and Dr. D. B. Merrin have gone solo, and Dr. Van Essen has taken his "A" licence. Messrs. L. J. Kestner, C. C. McCracken, and D. S. Clark have been elected members. On Saturday, September 26, the Club will be at home and is expecting several friends and visitors. The junior landing competition will be held on that date. A new machine should be operating by the autumn.

PORTSMOUTH

No flying was possible on three days of the week ending September 11, but for the remaining time 27 hr. were recorded. New members are: Lt. Cdr. V. J. Somerset-Thomas, R.N., Messrs. V. R. Yelf, G. Wood, Lts. P. W. Compton, C. R. Bateman, A. S. Whitworth, G. K. Horsey, R.N., and Sub.-Lt. J. C. M. Harman, R.N. It is proposed to entertain the pilots who are competing in the England-Johannesburg Air Race and their friends to a party on Saturday, September 26.

CINQUE PORTS

August proved another record flying month for the Club, the total being 401 hours. Messrs. Bergius, Green, Bayly and Thyne, who descended on the Club from Scotland, are progressing well with their "B" licence courses and are making the Club haggis-minded, no fewer than fifteen of these semi-edible oddities gracing the table one evening. Miss J. Broad has joined the Club to finish off her "B" licence course and is taking a series of lectures with Mr. A. J. S. Morris. Other new members include Flt. Lt. R. J. A. Ford and Messrs. R. W. J. Hooper and C. Hallifax.

YORKSHIRE

A new record was set up in August with a flying total of 330 hr. 45 min., which was nearly 100 hr. more than for the corresponding month last year and easily the highest figure yet recorded at Yeadon for one month. The following have joined, or re-joined, as members: Messrs. W. S. Firth, J. Barber, W. Marshall, S. W. Jackson, A. R. Miller, S. H. Burton, L. A. S. Harris, J. O. Crabtree, and J. Greaves. Aviation Group members are: Messrs. E. Fell, G. Brown, D. Noble, J. Smallwood, P. Trevor, J. R. Ward, A. Senior, W. Syddall, W. A. Gillian, M. Burnett, H. Sarkar, D. Stevens, Dr. R. Mennies and Mrs. R. Mennies. Messrs. O. G. Thomson and C. M. Blow have gone solo, while Miss E. M. Hailwood and A. G. S. Ferrand have passed their "A" licence tests.

Bad weather prevailed generally last week, but Club machines flew 44 hr. 50 min. Messrs. W. Marshall and S. E. Moorehouse have gone solo.

HERTS AND ESSEX

Flying times for August aggregated 447 hr. 38 min., but with the return of wintry conditions during the past fortnight (two days of which were unfit for flying) hours dropped considerably, the total for the period being barely 200. Messrs. S. H. Parker, F. C. Pickersgill, G. H. Hadland (Air League), and C. Underwood have gone solo and Messrs. J. P. Mellers, K. S. Sondhi, F. C. Pickersgill, and Count A. de Segonzac have passed the "A" licence tests. Mr. S. G. Smith has completed his night flight. New members are: Messrs. P. S. Sanghvi, R. Cluer, C. H. Hook, S. G. Powell, V. B. Athavali, H. M. Crump, J. Preller, H. N. Chaudhuri, and R. Allerton-Austin. The competition for the "Shelmerdine" Challenge Bowl has been postponed until Saturday, September 20.

BROOKLANDS

New members last week included Miss J. Paget, Mr. H. C. Gluckstein, and Mr. Hutton-Squire. Mrs. Kendall and Mr. Leversedge have gone solo and Mr. A. O. Hemus has passed his height test. Last week's flying time was 98 hr. On Sunday, September 6, eight machines went on a "dawn patrol" to the Northamptonshire Aero Club, and three pilots captured free breakfasts. During the brief period of fine weather Warner Brothers have been engaged on a new flying film, one of the Club's Moths being used as a camera ship and one of the Tigers as the mount of the aerobatic hero. Mr. R. Banks, fired with enthusiasm by the recent stratosphere flights, has taken a Club Tiger up to 13,500 ft. Members' Day at Brooklands is on Sunday, September 27. Flying starts at 3 o'clock, and a number of new machines will be demonstrated.

MIRTH by the MEDWAY

Rochester's Air Week : A Commendable Enterprise : The Events of Saturday

TO attempt the aerial beguilement of a critical community for seven consecutive days takes plenty of foresight and even more courage. Rochester has done it, and, so far as one could gather on a visit to the grand finale last Saturday, will have no reason to regret its ambitious step.

Promoted by Mr. R. Gordon, late R.F.C. and R.A.F., and with the efficient Capt. E. I. Short, of the Eastbourne Club, in the capacity of honorary organiser, the "Empire Air Week" was graced with the patronage of the Duchess of Bedford, the presidency of Councillor W. Longley, J.P., Mayor of Rochester, and the sovereignty of Air Queen Gladys Batchelor, who is democratic enough to have taken an "A."

The Mayor of Rochester (Councillor W. Longley, J.P.) and Miss Gladys Batchelor, the "Air Queen," seeing off the Mayoress for her first flight, made with Flt. Lt. Tommy Rose in the demonstration Eagle.

From Monday to Friday the aerodrome was the scene of great festivity, fun fairs and fireworks, but for Saturday there was a letter of vivid crimson on the local calendars. Alas, the dawn was grey and dental gnashings were to be heard among the citizens as showers swept down. But the show went on, with Capt. Short reasoning philosophically over the microphone that everyone might as well resign himself to getting wet and concentrate on the entertainment; and then, as things began to happen, came a grand clear-up.

Miss Pauline Gower set things moving (including spectators) with a bout of appallingly crazy flying in her trusty Spartan, and Mr. Piper, who probably knows the Short Scion better than anyone, showed how this local light liner goes gay on a non-working day. Payload/h.p. ratios were not the concern of the crowd that afternoon, but how they responded as they saw this little aerial coach from their home town looping above.

Not to be outdone, Mr. Seth-Smith set out in another twin-Pobjoy monoplane—the Monospar S.T.25. Although he put his luxurious machine through all his usual demonstration manœuvres—and then some, just for fun—it was his sudden disappearance, seemingly into the bowels of the earth, which summarily arrested respiration in the public enclosure.

Mr. W. G. Hire in the act of sitting down with his G.Q. equipment a few feet in front of the enclosure.

Actually, he had discovered an accommodating valley and had not developed subterranean ambitions. Mr. Chadwick, in his Kronfeld Super Drone, also appeared to burrow himself into the countryside, but returned to fly past with his hands in the air, not to show that he had not dirtied them during his apparent ploughing activities, but to let the Drone show everyone what a well-behaved little aeroplane it is.

The capacious and tractable Heston Phœnix, in the hands of Mr. Hordern, was soon off, and the last inch of its undercarriage tucked itself into the stub wings just as the machine swept low over the enclosure. Mr. Hordern regaled the crowd with selections from his repertoire, the strong point of which is a particularly graceful variety of stalled turn. Then Mr. Stephen Appleby buzzed round and about in his pet *Pou*, which is quite one of the most successful of its breed.

As official aerobatic ace to the Week, Mr. Roger Frogley, instructor to the Herts and Essex Aero Club, took off to give of his best, and after some tidy evolutions at a sensible height came down for some of his enclosure crawling.

B.A.-ptism

Thrill for Rochestrians: the Mayoress had decided to make her first flight and showed the very best of taste in chosing Flt. Lt. Tommy Rose and his Eagle as the means of her initiation. So after Tommy had revealed what a delightful plaything the Eagle can be, in addition to a gentleman's tourer, the baptism was duly performed.

By this time Mr. Bernard Collins had slipped unobtrusively in with Mr. Kronfeld's red Super Drone, which he proceeded to present for inspection at various speeds and angles.

Far from the madding crowd, Capt. M. Diamant and Mr. Francis Short scrutinised entries for the Concours d'Elégance and resolved that awards should be made to Flt. Lt. Rose's Eagle (with 500 hours in the log book) as the winning closed machine, to Mr. Hordern's Phœnix as runner-up in the same category, and to Mr. Pobjoy's B.A. Swallow as being successful in the "open" class.

Meanwhile, Mr. W. G. Hire girded on his G.Q. demonstration equipment, went to 1,000 ft. in a Spartan, and stepped off, resulting in a somewhat lighter landing by the Spartan and a heavier one by himself, for he had plenty of wind to contend with. It was a perfectly timed drop, and made everyone very happy. Then *Syrinx* sailed away on a test flight.

The Air Queen graciously lapsed into the most becoming unconsciousness for the benefit of the crew of the Merciful Monospar, and Mrs. Mollison came with her sophisticated Beechcraft just in time to offer her condolences.

Other aerial arrivals were made by the Mayors of Chatham and Gillingham.

Eventually there was a general assembly at the rostrum for prize-giving and the delivery of a few charming words by the ever-popular Mrs. Mollison. Mr. T. J. Stubble, incidentally, took the trophy for timely arrival.

HERE and THERE

Hereford on Friday

SINCE the Cardiff race is scheduled for next Saturday, the organisers of the Hereford air race, details of which were given in *Flight* of August 20, have amended their regulations, and this race will be held at 3 p.m. to-morrow (Friday) and not on Saturday.

Professor H. Levy

BY an unfortunate transposition of names, a paragraph last week intended to record the death of Dr. Raymond Howland, D.Sc., made it appear that it was Professor H. Levy, M.A., B.Sc., F.R.S.E., who had died.

Happily, Prof. Levy—who had collaborated with Dr. Howland in important hydrodynamical work affecting flying-boat design—is alive and well, and we trust that his many friends at the Imperial College of Science, the N.P.L. and elsewhere will forgive us for the anxiety which the slip must have caused them.

A Lancashire Party

ON Saturday, September 26, the Lancashire Aero Club is holding an "At Home" at Woodford. There will be the usual sealed arrival competition between 2 and 2.30 p.m., followed by a landing competition for pilots with less than 50 hours of solo experience. This event will be open to all clubs, and the winner will receive the Pemberton Trophy.

During the afternoon the inter-city (Liverpool v. Manchester) cross-country trial will be run off, the winner receiving the Leeming Cup, which will be held for three months, and Flt. Lt. G. A. V. Tyson will give displays of normal and inverted aerobatics. In the evening there will be an informal dance in the clubhouse.

The Dumfries Project

IT is expected that the derelict factory of the old Arrol-Johnston concern, at Dumfries, will be put into use shortly. Mr. J. R. Greenwood, managing director of Craven Brothers (Manchester), Ltd., machine tool makers, Vauxhall Works, Reddish, stated that work would begin this week on the task of preparing the factory for the manufacture of aircraft and marine engines.

Actually, there is no connection between the firm of Craven Bros. and the scheme for using the Dumfries factory; Mr. J. R. Greenwood is a director of the company taking over the factory. It was possible, he said, that when production was in full swing about 2,000 people might be employed there. They hoped to have the support of the Air Ministry and the Admiralty.

GEtting toGEther

FOLLOWING its formation recently, the Association of Aeronautical Ground Engineers is going all out to secure the wholehearted support of ground engineers, both at home and in the Colonies, in order that it may put itself in the strong position visualised by those who have formed it.

The badge of the A.A.G.E. cleverly tells a story. The size of the empennage suggests that the machine is badly in need of the support it is receiving!

The executive council of the Association consists of ten ground engineers of exceptional experience. The hon. secretary is Mr. Robert S. Moore and the hon. treasurer Capt. S. L. Collins, A.M.I.A.E., M.Ae.S. Those interested can obtain full particulars of the Association's aims and objects by communicating with Mr. Moore at 17, Chessington Way, West Wickham, Kent.

ABOUT THE AFRICA RACE

INTERESTING information about the aircraft, engines and pilots in the England-Johannesburg Race will be a feature of next week's issue of *FLIGHT*. There will be a special article on the course from the competitors' viewpoint, by Flt. Lt. T. Rose, who has flown over it on record-breaking trips, while useful information for those visiting Portsmouth for the start will also be given.

NEXT THURSDAY — FLIGHT — **SEPTEMBER 24.**

***The Aircraft Engineer* supplement, which normally appears in the last issue of each month, will on this occasion be postponed until the following issue, viz., October 1.**

Eric W. Walford

IT is with deep regret that *Flight* records the death, in sad circumstances, of Mr. Eric Weston Walford, the well-known patent agent, consulting engineer and private owner. He had taken a considerable personal and professional interest in aviation since he made his first flight in 1911 with Capt. Geoffrey de Havilland.

Flotation Flotation

FLOTATION gear and pneumatic dinghies for machines whose duties carry them over the sea; flag targets for machine gun practice, aerodrome wind indicators; and all types of balloons are among the chief products of R. F. D. Company, Ltd., registered on August 31 as a public company. It is stated in the announcement of the company's formation that its objects are, in particular, to acquire as a going concern the business of manufacturers of aeronautical equipment carried on at Guildford by R. F. D. Company (Holdings), Limited (formerly R. F. D. Company Limited).

One "line" of outstanding interest, which is being fitted to certain machines of the Fleet Air Arm is the Youngman dinghy, which can be used for the dual purpose of salvaging an aircraft or saving the crew. It is inflated by CO_2, and is normally carried stowed in the centre section.

A public issue of 417,600 2s. shares at 3s. per share was made last Monday, and was at once heavily over-subscribed.

The directors of the new company are Messrs E.S. Shrapnell-Smith, C.B.E. (chairman), N. J. Hulbert, M.P., and R. F. Dagnall (managing director).

NEW COMPANIES

In the notes below, for reasons of space, the "objects" of new companies are usually somewhat abbreviated.

AERO CREDIT, LTD.—Private company, registered September 3. Capital, £1,000 in £1 ordinary shares. Objects: to carry on business as bankers, capitalists, financiers, etc. The subscribers (each with one share) are: John O. Pride, 78, Pendle Road, London, S.W.16, engineer; Alfred D. Clarke, 245, South Norwood Hill, London, S.E.25, engineer (director of Pride and Clarke, Ltd., and P. and C. (Finance) Ltd.). Alfred D. Clarke shall be first director.

BROUGHTON BLAYNEY AIRCRAFT COMPANY, LIMITED, was registered as a private company on September 3, with a nominal capital of £2 000 in £1 shares. Objects: to carry on the business of aeroplane designers and constructors, propeller and accessories manufacturers, etc. The subscribers (each with one share) are: Adolf J. Blayney, Manor Cottage, Scarcroft, nr. Leeds, aircraft mfr.; Hugh B. Simpson, solicitor. The first directors are Adolf J. Blayney and Frank W. Broughton.

AERONAUTICAL PATENT SPECIFICATIONS.

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.).

(Published September 17, 1936.)

28392. WEIR LTD., G. & J., and BENNETT, J. A. J.: Torsional vibration-absorber (452,282).
1546. LA CIERVA, J. DE: Aircraft with auto-rotative wings (452,364).
1547. LA CIERVA, J. DE: Aircraft with auto-rotative wings (452,365).
1548. LA CIERVA, J. DE: Aircraft with auto-rotative wings (452,366).
5172. MARTIN, J.: Aircraft (452,213).
11736. SOC. D'INVENTIONS AERONAUTIQUES ET MECANIQUES S.I.A.M.: System of retractable landing gear for aeroplanes (452,324).
1347. LA CIERVA, J. DE: Aircraft with auto-rotative wings (452,397).
10721. SOC. D'INVENTIONS AERONAUTIQUES ET MECANIQUES S.I.A.M.: Method and device for mounting the blades of airscrews, especially those made of light metal (452,403).
18394. LA CIERVA J. DE: Aircraft with auto-rotative wings (452,407).